The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 627.—Vol. XVII. LONDON, SATURDAY, AUGUST 28, 1847. [Price 6d.

FOR SALE—The WHOLE, or ONE-HALF, SHARE in a COPPER AND SILVER-LEAD MINE, in MERIONETHSHIRE, North Wales. Apply to Capt. John Jenkins, Aberdovey, Merionethshire, who will furnish every information respecting the mine. 1

TO BE SOLD, BY PRIVATE CONTRACT, at GODOLPHIN MINES, ONE 24-inch STAMPING-ENGINE, 8 feet stroke, boiler, 11 tons. ONE 18-inch WHIM-ENGINE, 4 feet stroke, boiler, 7 tons, and cage. SIX TUBULAR BOILERS, 11 tons each. A large IRON BALANCE-BOB, 12 tons. Application to be made to Capt. R. Williams, on the mines. Dated Godolphin Mines, Helston, Cornwall, August 9, 1847. 2

TO BE LET, and entered upon immediately, a valuable SEAM of STEAM COAL, of about 200 acres, more or less, situated at OLD SHILDON, in the county of DURHAM. The shaft is already sunk, and a private line of railway connects it with the Stockton and Darlington and Clarence Railways, below the Brusselton fucline: there is also a considerable thickness of FIRE CLAY, containing great quantities of IRONSTONE intermixed with it—a sample of which can be seen on the bank—and which, being let with the coal, might together be worked with very great advantage, and is well worthy of the attention of those wishing to embark in such a speculation. CLAY also, for making bricks and draining tiles, is in great abundance, and can also be let at the same time.—Apply to Mr. John Robson, of Redworth House; or to Mr. Wm. Clough minson, of Old Shildon.—August, 1847. 3

DUDDINGSTONE AND BRUNSTAIN COAL-FIELDS, near EDINBURGH, TO BE LET, as detailed in former advertisements. The SEAMS OF COAL are numerous, and BLACKBAND IRONSTONE may be expected in the lands, similar to that which has been recently discovered at Gilmerton, Dryden, and Greenlaw, in the same range of coal strata. Excellent LIMESTONE is known in the lands.—The near vicinity to the City and Portobello, besides other markets now opened by railway, and also the harbours of Leith and Fisherrow, with all which the existing railway, passing through the estate, connects, renders it now very eligible for colliery operations. There are two steam-engines, and other colliery machinery, at the pits, one of which is nearly sunk to the Jewel Coal. Offers for a lease to be addressed to Mr. Geddes, 49, Albany-street, Edinburgh. July 29, 1847. 4

STRONG MIXING PIG-IRON.—The YSTALYFERA IRON COMPANY beg to solicit ORDERS for their ANTHRACITE PIG-IRON. This iron mixes well with Scotch pig—imparting to it strength and elasticity, and receiving from it a portion of its softness and fluidity. No. 3 Pig is recommended for mixing with soft iron—Nos. 1 and 2, for machinery castings, requiring great soundness and strength. At this period, when cast-iron is so much employed in the construction of bridges and other buildings, requiring all the strength and elasticity which the best mixture of metal will afford, it may be interesting to call attention to the characteristics of ANTHRACITE PIG-IRON, as REPORTED on by that great practical authority, the late DAVID MUSHET, Esq., M.I.C.E.:—

"It greatly exceeds, in *strength*, in *deflective* powers, and capacity to resist *impact*, any iron at this time manufactured in the United Kingdom."

"It now only remains for me to mention a property peculiar to this iron, which was noticed at the time I made the trial experiments, four years ago, but which has been more fully developed in those more recently made. The property referred to is one of *great springiness*, or *elasticity*, which communicates a tendency to the bar, in deflecting and breaking, to resume its rectangular form. Bars that had obtained a permanent set of 3-10ths, when afterwards broken, presented but a slight deviation from a right line; and in no case, did the curvature exceed one-fourth of a tenth."

"It was also remarked, that most of the fractures, in breaking, presented a *regularity of grain* throughout, resembling the structure of *unhardened steel*."

Address THE YSTALYFERA IRON COMPANY,
Dated June 29, 1847. *Near NEATH, SOUTH WALES.* 5

HOT-BLAST WITHOUT COAL, LABOUR, OR REPAIRS.
DIXON AND BUDD'S PATENTS.
Apply for particulars, or to inspect the process in operation on six blast-furnaces, to J. Palmer Budd, Esq., Ystalyfera Iron-Works, near Neath. Dated June 29, 1847. 6

DYFNGWM LEAD MINES, NORTH WALES—Conducted ON THE COST-BOOK SYSTEM.
OFFICES—No. 35, OLD JEWRY,
JAMES JAMIESON, Secretary.
Where sections and plans of the mine may be seen, and all information obtained. 7

GENERAL MINING MART AND CLUB HOUSE, LONDON.

The MINERAL PRODUCTIONS of the WORLD are computed to be of the annual value of upwards of £84,000,000—one-half of which is raised in Europe alone. But facts regarding mining and geology, with the most approved modes of analysing and profitably separating mineral products—the results of practical experience—have no common concentration or abiding place; nor have ming results, varying, as they confessedly do, with the variations of the strata, any acknowledged repository beyond the shelves of a few provincial institutions.

LONDON—the focus of business appertaining to the empire and the world—the seat of most mining companies, and where almost all of them receive support and encouragement—has no public institution—no *locus standi*—to which the shareholder, the agent, the inventor, the practical miner, or the possessor of valuable mineral property, can have access to, either to afford or obtain information.

It is proposed, therefore, to form an institution in London, to be called—

"THE GENERAL MINING MART AND CLUB HOUSE,"

accessible to members on payment of £4 4s. per annum. From and after Christmas next, an entrance fee of One Guinea will be required beyond the subscription.

The advantages to be derived from the institution will be these:—

The letters of every member will be received there, and his address in London always known to his family and other correspondents.

He will have a place to transact his business, make and keep his appointments, write his letters and post them; and, for these purposes, there will be private boxes, as well as public rooms.

There will be all the mining and leading journals of the day, with such other interesting publications as shall be decided on.

The refreshments will be charged at little more than cost price—being a saving of full 25 per cent.—and no fees will be payable to servants. Every facility afforded for going to and from the railway trains, and for visiting places of business and amusement in London.

In fine, this institution will afford to the member, as soon as he reaches London, the means of finding himself in the society of his friends, or others of congenial taste, with all the ease, but less expense, of an inn. It will be open to *one and all* of its members, combining all the conveniences of a club, but independent of all political, party, national, or local feeling.

For mining business appropriate rooms will be set apart, and every facility afforded in the formation and extension of mining companies—the conduct of their business—the holding their annual or other meetings, and the sale and purchase of shares. The charges for these will be on a regulated and moderate scale, and will only concern those who shall desire the transaction of such business.

No responsibility of any kind is to be incurred by the member beyond the amount of his annual subscription; and he may withdraw at any time by giving half-a-year's notice, and paying up his subscription to the proposed time of quitting.

It is confidently expected that, in addition to the ordinary members, support will be given to this institution by the noblemen and gentlemen resident in, and representing, the counties and boroughs in the mineral districts, as also by the lords of the mineral soil generally, and by parties who have greatly benefited by mining, and possess mining influence. As the avocations of these noblemen and gentlemen will undoubtedly preclude the favour of frequent visits, it is trusted that they may still honour the proposed institution with their patronage and support, by becoming Life Honorary Members, paying a present subscription of Ten Guineas in lieu of all annual subscriptions, which will entitle them to all the advantages of the institution, and constitute them, *ex facto*, members of the committee, should they desire it.

Subscriptions from mines will entitle any one of their accredited proprietors or agents to the advantages of the institution.

Letters for further information and applications for admission to be addressed to Mr. J. G. Beckerleg, 18, Cornhill; to Messrs. Crossman, Sommers, and Co., 28, Threadneedle-street; or to Mr. R. Tredinnick, Three Kings'-court, Lombard-street, London, where detailed prospectuses may be obtained; prospectuses can also be had at the *Mining Journal* office, 26, Fleet-street. 8

PATENT GALVANISED IRON AND WIRE ROPE WORKS,
MILLWALL, POPLAR.

ANDREW SMITH begs to inform the Mining, Railway, and Shipping interests, that he has obtained a PATENT for an IMPROVED METHOD of GALVANISING IRON, producing a much superior article at a considerable saving in cost—the improved process for galvanising wire rope, adding only £10 per ton instead of £30, under the ordinary processes. The rope is extensively used in damp situations, for mining and railway purposes, and for ships' standing rigging. 9

TO ENGINEERS, RAILWAY CONTRACTORS, MINING AGENTS, IRONMASTERS, AND OTHERS REQUIRING FINE GREASE for MACHINERY and AXLES of every description.—JOSEPH PERCIVAL'S IMPROVED ANTI-FRICTION GREASE is—after trials on machinery and axles of every kind where constant friction is kept up—admitted to be the most useful, economical, and best preparation of the kind ever offered to the public.

References to scientific and practical men can be given, and testimonials shown of its great excellence.—Samples forwarded on application at the manufactory, Green-street, Wellington-street, Blackfriars-road, London. 10

ENGLAND, INDIA, AND AUSTRALIA.—The Right Honourable the Lords Committee of the Privy Council for Trade and Plantations have been pleased to GRANT PERMISSION to the INDIA AND AUSTRALIA MAIL STEAM-PACKET COMPANY to ESTABLISH, at once, the WHOLE LINE of STEAM-PACKETS from ENGLAND TO INDIA AND AUSTRALIA, *viâ* the Mediterranean, Egypt, &c., in conformity with the terms of the Royal Charter of Incorporation, which received the Great Seal on the 6th of August, 1847, and is now deposited at this office, where copies of the same may be obtained, together with prospectuses and further information. By order of the board,
Offices, 34, Cornhill. JOHN YATES, Secretary. 11

STEAM TO INDIA VIA EGYPT, MALTA, ITALY, ALEXANDRIA, AND THE PENINSULAR PORTS.
PASSAGE TO BOMBAY, MADRAS, AND CALCUTTA.

The Peninsular and Oriental Steam Navigation Company BOOK PASSENGERS for CEYLON, MADRAS, and CALCUTTA direct, by steamers leaving Southampton on the 20th, and for Alexandria, *en route* to Bombay, on the 1st of every month.

A steamer from Southampton leaves the 1st and 20th of every month for Malta, whence are steamers to Naples, Genoa, Civeta Vecchia, three times a month. 12

STEAM TO CORUNNA, OPORTO, VIGO, LISBON, CADIZ, AND GIBRALTAR.
A steamer leaves Southampton on the 7th, 17th, and 27th of every month.

Apply at the Peninsular and Oriental Steam Navigation Company's offices, 51, St. Mary Axe, London, where only passages can be secured throughout.

BIRMINGHAM, WOLVERHAMPTON, AND DUDLEY RAILWAY.—Notice is hereby given, that the next ORDINARY MEETING of the shareholders of the BIRMINGHAM, WOLVERHAMPTON, AND DUDLEY RAILWAY will be HELD at Dee's Royal Hotel, in Temple-row, Birmingham, on Monday, the 30th day of August, 1847, at Twelve o'clock in the forenoon.

The transfer books of the company will be closed from the 19th day of August inst., until after the day of the meeting.

Proxy papers, in order to be available, must bear a stamp of 2s. 6d., and must be received by the secretary 48 hours, at least, before the time appointed for the meeting.

WILLIAM MATHEWS, Chairman.
JOHN W. KIRSHAW, Secretary. 13
34, Bennett's-hill, Birmingham, August 10, 1847.

BIRMINGHAM AND OXFORD JUNCTION RAILWAY.—Notice is hereby given, that the next ORDINARY MEETING of the shareholders of the Birmingham and Oxford Junction Railway will be HELD at Dee's Royal Hotel, in Temple-row, Birmingham, on Monday, the 30th day of August, 1847, at Three o'clock, in the afternoon.

The transfer books of the company will be closed from and after the 19th day of August, instant, until after the day of the meeting.

Proxy papers, in order to be available, must bear a stamp of 2s. 6d., and must be received by the secretary 48 hours, at least, before the time appointed for the meeting.

WILLIAM MATHEWS, Chairman.
JOHN W. KIRSHAW, Secretary. 14
34, Bennett's-hill, Birmingham, August 10, 1847.

CAMERON'S COALBROOK STEAM COAL AND SWANSEA AND LOUGHOR RAILWAY COMPANY.
CONTRACT FOR WORKS. 15

The directors of the SWANSEA AND LOUGHOR RAILWAY COMPANY are prepared to RECEIVE TENDERS for the EXECUTION of the WORKS on their line of railway.—Plans and specifications may be seen, and forms of tender obtained, at the office of Thomas Page, Esq., the company's engineer, Thames Embankment Office, 2, Middle Scotland-yard, Whitehall, London, between Monday, the 30th of August, and Friday, the 3d of September, both inclusive; and at the offices of John Jackson Price, Esq., solicitor, Swansea, from Monday, the 6th, till Saturday, the 11th Sept. next, both inclusive.

Sealed tenders addressed to the secretary must be delivered at the company's offices here, not later than Twelve o'clock on Monday, the 13th September next. The directors do not pledge themselves to accept the lowest tender. By order of the directors,
London, 2, Moorgate-street, August 24, 1847. A. C. HOWDEN, Secretary.

VIADUCTS AND OTHER RAILWAY WORK.—The attention of Railway Engineers, Architects, and Contractors is particularly directed to the great advantages to be derived from the application of SEYSSEL ASPHALTE, as the *only impervious and permanent* covering for arches and roofs, and lining of reservoirs, gutters, &c. The arrangements of CLARIDGE'S PATENT ASPHALTE COMPANY enable it to execute works of any extent with the greatest promptitude. 16

In order to guard against the use of spurious materials, it is important that all applications for works to be executed be made direct to this company; and, as a further protection, it is suggested that Engineers, Architects, and Contractors, should require a CERTIFICATE from the company that the proper description of material has been used.

Information may be obtained as to all works which have been executed by the company since its establishment in 1838, which will prove that the failure of many works represented to have been done with the genuine material has resulted from the substitution of a spurious one. I. FARRELL, Secretary,
Seyssel Asphalte Company, Stangate, London.

IMPORTANT TO RAILWAY AND STEAM NAVIGATION COMPANIES, MANUFACTURERS, AND ENGINEERS.
W. BROTHERTON AND CO.'S
PATENT LUBRICATING FLUID (or Animal Oil) FOR ALL DESCRIPTIONS OF MACHINERY. 17

W. B. & CO. have the pleasure to state, that the above article is extensively used in her Majesty's Steam Navy, and by several of the principal Steam Navigation and Railway Companies, and is pronounced by them, and by the first practical engineers of the day, to be far better adapted for the purposes of lubrication than any other article hitherto used for such purposes. The Patent Lubricating Fluid is equally applicable for the most intricate and fine pieces of machinery, as for the heaviest bearings of the steam-engine. It is cheaper, much more economical, and cleaner than oils at present in use; is free from smell, and calculated to effect a vast saving in the expenditure of working steam powers.

Further particulars can be had, and testimonials seen, by application to the manufacturers, W. BROTHERTON & CO., Hungerford Wharf, Strand, London.
N.B.—The above article will burn in lamps, and give a light equal to the best sperm oil.

IMPORTANT TO ENGINEERS, MANUFACTURERS, RAILWAY AND STEAM-BOAT COMPANIES.
Messrs. W. & C. MATHER beg to call the attention of the ABOVE PARTIES to their
IMPROVED PATENT ELASTIC METALLIC PISTONS. 18

The PRINCIPAL FEATURE and ADVANTAGE of THIS IMPROVEMENT is—

1. Its great ELASTICITY and SELF-ADJUSTING PROPERTIES, which enable it to yield to any inaccuracy of the cylinder, whether oval or taper, and to move with the least possible friction.

2. Its extreme SIMPLICITY and LIGHTNESS, consisting of only two pieces of metal, having the vertical and lateral pressure in due and proper proportion, independent of each other.

3. It takes the LEAST possible SPACE, and is well adapted for air and water-pumps, as it allows of a larger water way.

Messrs. W. & C. MATHER feel confident that it is the BEST ELASTIC METALLIC PACKING yet known, for the above reasons.

Models may be seen at the Salford Iron-Works, Manchester; at W. Barker's, engineer, Newton-Moor; and also at J. Mather's, engineer, Beaufort-street, Chelsea, London.

FLEXIBLE HOSE-PIPES FOR LOCOMOTIVE ENGINES, RAILWAY CRANES, FIRE-ENGINES, GAS, &c.
PATENT VULCANISED INDIA-RUBBER HOSE-PIPES AND TUBING OF EVERY DESCRIPTION. 19

These pipes are made to stand hot-water without injury—are very superior to leather pipes, or the common India-rubber pipes; and, as they do not become hard or stiff in the lowest temperatures, or require any application when out of use, are particularly well adapted for fire-engines.

FLEXIBLE TUBING, of every description, for gas, chemical purposes, &c.
VULCANISED INDIA-RUBBER WASHERS, all sizes, for steam and hot-water joints, &c.—Sole manufacturer, JAMES LYNE HANCOCK,
Goswell Mews, Goswell-road, London.

PATENT OFFICE AND DESIGNS REGISTRY,
No. 210, STRAND, LONDON.

INVENTORS will RECEIVE (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION of INVENTIONS and DESIGNS, with Reduced Scale of Fees. 20

Messrs. F. W. CAMPIN & CO. offer their SERVICES, and the benefit of many years' experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VALIDITY, economy, and dispatch—assisted by scientific men of repute.

Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street).

IMPORTANT TO ENGINEERS AND INVENTORS.—On Friday, the 27th August, a STAMPED EDITION of the PATENT JOURNAL will be published, and on each succeeding Friday, *to go free by post*, price 7d.—containing Specifications of Patents, with copious engravings—Articles on Scientific Subjects—Registrations—Lists of Patents, weekly, &c. 21

"To Engineers, Ironmasters, and, indeed, to all interested in the arts, no work can be more useful; whilst, to inventors, it is indispensable."—*Manchester Guardian.*

A Specimen Number will be sent free of charge.—Send a Post-office order, payable to Edward John Payne, Esq., 89, Chancery-lane, when the *Patent Journal* will be forwarded on Friday evening. For the year, £1 8s.; half-year, 13s. 6d.; quarter, 7s.
Patent Office, Barlow, Le Capelain, and Payne, 89, Chancery-lane.

ASSAYING.—A PERSON, who has been engaged the last 15 years in the Assaying of Copper, Lead, Silver, and other Metals, would be glad to fill a SITUATION under a respectable company.—Address "M.," at the office of the *Mining Journal*, 26, Fleet-street, London.—Dated August 26, 1847. 22

A YOUNG ENGINEER, well acquainted with Mineral Chemistry, Mineralogy, and Geology—in proof of which he will refer to his published works and analyses—OFFERS his SERVICES, at a moderate salary, as an ASSAYER and GENERAL ASSISTANT, to Mining Companies or Proprietors of Smelting-Works, at home or abroad. The advertiser having been extensively engaged in the construction of Roads, Railways, and Hydraulic Works, would also take charge of the outworks of a mine, especially in a new country, and do all in his power to further the interests of his employers.—Address to "C.," 17, Great College-street, Westminster. 23

BRETT AND LITTLE'S TELEGRAPH.—The Patentees are now prepared to GRANT LICENSES to RAILWAY COMPANIES, or OTHER PARTIES, for the USE of their PATENT, and are ready to SUPERINTEND its ADOPTION by COMPANIES providing their OWN MATERIALS for that purpose.
Tickets to view may be obtained at the offices, Furnival's Inn, Holborn. 24

CLARKE AND VARLEY'S ATMOSPHERIC RAILWAY.—The MODEL of this RAILWAY is WORKED DAILY, from One to Four o'clock. Entrance to the Works at the Poplar Station of the Blackwall Railway. 25

WILSON & FRASER, 2, WELLINGTON-BUILDINGS, LIVERPOOL, and 13, EXCHANGE-PLACE, GLASGOW, have always ON SALE PIG-IRON, BAR-IRON, RAILWAY CHAIRS, and RAILWAY BARS. 26

RICHARD BOOT, ACCOUNTANT, MINE AND RAILWAY SHAREBROKER, COMMERCIAL AND GENERAL AGENT,
REDRUTH. 27

JOHN TREGONING, MINE SHARES COMMISSION AGENT, *HIGH-CROSS, TRURO.* 28
MINING OFFICES, 1, ST. MICHAEL'S-ALLEY, CORNHILL, LONDON.

WATSON AND CUELL, MINE AGENTS.—N.B.—STATISTICAL INFORMATION furnished (on application) to SHAREHOLDERS in MINES in Cornwall, Devon, Scotland, Ireland, Wales, and Spain. 29

WILLIAM H. SMITH, MINING SHARE AGENT, 10, *WARNFORD-COURT, THROGMORTON-STREET, LONDON.* 30

MR. R. TREDINNICK, MINING AGENT AND DEALER IN EVERY DESCRIPTION OF SHARES.
THREE KING'S COURT, LOMBARD-STREET, LONDON. 31

THOMAS P. THOMAS, MINE AGENT, AND DEALER IN RAILWAY AND OTHER SHARES.
18, *THREADNEEDLE-STREET, LONDON.* 32
Mr. T. P. THOMAS is a SELLER of Gwinear Consols, at £21; West Wheal Providence, at £18—and is a BUYER of Trehanos, Herodsfoot, Herodscombe, North Pool, & East Pool,

JAMES LANE, MINING SHARE DEALER, 75, *OLD BROAD-STREET, LONDON.* 33

BRITISH MINING OFFICES, 41, MOORGATE-STREET, LONDON.—PROSPECTUSES may be had, and ORIGINAL SHARES ALLOTTED in the COPPER and SILVER-LEAD MINES connected with these offices, on application to the secretary, THOS. HENRY TAUNTON. 34

ORIGINAL REGISTRY OFFICE, FOR THE SALE AND PURCHASE OF MINING SHARES.
No. 28, THREADNEEDLE-STREET, LONDON.
CROSSMAN, SOMMERS, AND CO., AGENTS.
SHARES FOR DISPOSAL.

Coombe Mine	Pennant
Devon and Courtenay Consols	South Wheal Maria
East Wheal Rough Tor	South Wheal Rose
Great Wheal Frederick Tin Mine	South Wheal Sophia
Great Wheal Rough Tor	Victoria Tin Mining Company
Grambler and St. Aubyn	Wheal Susan
New East Crowndale	West Wheal Rough Tor
North Wheal Camel	Wheal Essa
Princess Royal	&c. &c. &c.

35

MONEY.—MESSRS. WINSTANLEY & CO., Sharebrokers, inform their friends and the public, they make IMMEDIATE ADVANCES, to any amount, on the deposit of English and Foreign Railway Shares, Scrip, and Debentures, upon exceedingly advantageous terms: they also BUY and SELL every description of STOCK and MINING SHARES, at much less commission than usually charged. 6, Bank Chambers, opposite the Bank of England. 36

ASTURIAN MINING COMPANY.—Notice is hereby given that the ADJOURNED GENERAL MEETING of the shareholders will be HELD on Monday, the 30th day of August inst., at the company's offices, 9, Austinfriars, at Two o'clock precisely. None but registered shareholders can take part in the proceedings of the meeting; and no share will be received for registration after Twelve o'clock on Saturday, the 28th inst. By order of the board,
Offices of the Company, 9, Austinfriars, Aug., 1847. K. MACKENZIE, Secretary. 37

EAST CROWNDALE MINE.—WANTED TO PURCHASE, A LARGE INTEREST in THIS MINE.—The number of shares, and price, to be sent per letter (pre-paid), addressed to "W. B.," Jamaica Coffee-house, St. Michael's-alley, Cornhill, London. 38

GREAT SOUTH TOLGUS MINING COMPANY.—The directors hereby give Notice, that the CALL of TEN SHILLINGS per share, which was made on or about the 23d of July last, in accordance with Regulation, No. 1, is PAYABLE the 21st inst., and that any SHARES upon which the said CALL shall NOT have BEEN PAID, will, after the expiration of one month from this Notice, become FORFEITED, and will be publicly sold accordingly. By order of the board.
Liverpool, August 23, 1847. 39

NATIONAL BRAZILIAN MINING ASSOCIATION.—Notice is hereby given, that, after Monday, the 30th August inst., no SHARES or SCRIP will be MARKED, or MONEY RECEIVED, on account of the THIRD INSTALMENT of £1 per share on the marked shares and scrip, due on the 18th inst.
By order of the board, JOHN KEMPSTON, Jun., Secretary.
26, Throgmorton-street, August 20, 1847. 40

ASSAYING AND ANALYSIS.—Mr. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS and ANALYSES of all PRODUCTS, metallurgical and manufacturing, at his LABORATORY,
23, *HAWLEY-ROAD, KENTISH TOWN, LONDON,* 41
to which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

BRUNTON'S PATENT ORE-DRESSING FRAME.—These FRAMES, for DRESSING TIN, COPPER, and OTHER MINERALS, having been in use, and given satisfaction, on several mines, during the last two years, the PATENTEE begs to call the attention of all Adventurers and Mine Agents to the great advantages, both as regards economy of labour and the great increase of mineral obtained by their adoption. The following gentlemen can certify as to their utility:—Thos. Bolitho and Sons; P. N. Johnson, Esq.; Capt. Jos. Vivian, Cook's Kitchen Mine; Capt. R. Kernick, St. Ives Consols; Capt. R. Edwards, Wheal Franco; Capt. W. Teague, Wheal Grey; Capt. James Miners, and Capt. Matthew Rogers, Carn Brea Mines. 42

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the SAFEST, CHEAPEST, and most EXPEDITIOUS MODE of effecting this very hazardous operation. From many testimonies to its usefulness with which the manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c.:—"I am very glad to hear that my recommendations have been of any service to you; they have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall. 43

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES, AND CLOCKS.—E. J. DENT, 82, Strand, and 33, Cockspur-street, watch and clock maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £8 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each. 44

DENT'S PATENT DIPLIEDOSCOPE, or meridian instrument, is now ready for delivery. Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

RAILWAY TRAFFIC.—Shortly before the prorogation of Parliament there was presented, by command of her Majesty, a summary of returns for the year ending June 30, 1846, showing the number of passengers who travelled on 63 railways in the United Kingdom, divided into classes; also the receipts from each class of passengers, and from goods, &c., from the 30th June, 1845, to the 30 June, 1846. That document has just been issued, pursuant to an order of the House of Commons (dated July 21). The totals shown by the said returns may be thus briefly stated:—Number of passengers during the year—first class, 6,160,354; second class, 16,931,065¾; third class, 14,559,515¾; parliamentary class, 3,949,922; and mixed (several companies having neglected to keep a separate account of each class of passengers), 9,193,126. Thus the grand total number of passengers who travelled during the year on the 63 railways enumerated in the return (and containing all the principal ones in the United Kingdom then in operation) amounted to no fewer than 43,790,983¾. Another part of the return states the fares per mile for the several classes. The highest fare on any line for the first class was 3-.43d. per mile (on the Lancaster and Preston). The receipts from passengers during the year were:—From first class passengers, 1,661,897*l.* 19s. 10½d.; second class, 1,937,946*l.* 19s. 11d.; third class, 738,474*l.* 4s. 11d.; parliamentary class, 293,739*l.* 7s.; "mixed," 93,164*l.*—making the total receipts, 4,725,916*l.* 11s. 6½d. The receipts during the same period from goods, cattle, carriages, parcels, mails, &c., were 2,741,300*l.* 15s. 6½d. The grand total of receipts from passengers, traffic, &c., was thus, in the twelve months ending June 30, 1846, 7,466,416*l.* 8s. 0½d. The following are the separate receipts of some of the principal lines:—Great Western (including Oxford, Cheltenham, and Great Western Union, and Bristol and Exeter), 907,675*l.*; London and Birmingham, 1,017,602*l.*; Midland (including North Midland, Midland Counties, Birmingham and Derby, and Sheffield and Rotherham), 540,538*l.*; South Eastern, Greenwich and Canterbury, and Whitstable, 349,857*l.*; Eastern Counties, 361,845*l.*; Grand Junction (including Liverpool and Manchester, and Bolton and Leigh), 642,464*l.* &c.

THE ATMOSPHERIC SYSTEM—SOUTH DEVON RAILWAY.—We have very great satisfaction, in stating that the atmospheric mode of traction has been completely tested on 10½ miles of this line—viz., from Exeter to Teignmouth, during the past week, every experiment having been found to answer most admirably. Two trains have been run daily, each way, since Monday, between the regular locomotive trains; the up-train from Teignmouth, 10.45 a.m. and 4 p.m., down from Exeter, 3 p.m. and 6.30 p.m., and the distance has been easily accomplished in 20 minutes, and, including stoppages at Starcross and Dawlish, in 40 minutes. Many trains, when required, have been quicker; and the average speed has been, during the week, 65 miles per hour, though in some parts of the line the speed has been still more rapid. The trains have been thoroughly under control, stopping at the stations with the most perfect precision, and that, at times, with a weight of no ordinary character. On Tuesday a train of four passenger carriages, filled with the friends of the engineers, three trucks laden with coals being attached, were brought on at what might be styled a terrific pace from Exeter to Teignmouth. Mr. Brunel and Mr. Samuda, who have been superintending the works, have been indefatigable in their attention and efforts to make everything ready for the passenger traffic, which is to take place in the course of a few weeks. The result of the regular running has given them great satisfaction, as it has proved that the entire apparatus is in complete working trim. The directors of this railway do not intend to wait for the completion of the line to Plymouth before they give facilities to the inhabitants of the three towns to use it. It is their intention to form a temporary terminus at Laira-green, for which purpose about six acres of ground have been rented, and are now regularly staked out The works in the neighbourhood of Plymouth are being proceeded with rapidly; the road down towards King-street is rapidly progressing, the walls are of a very substantial character, and are erected to within a few yards of the street, and the space between them filled up so as to be ready for the laying of the rails whenever that may be desirable.—*Western Luminary.*

THE DUKE OF WELLINGTON.—We have been much pleased by the inspection of Mr. Ryall's new portrait of the hero of Waterloo, which has just been engraved from a Daguerreotype executed in 1844: the likeness is so true to nature, and so complete a translation of the features, character, and very look of the illustrious Duke, that nothing but the reflection of the face of his Grace in a mirror can surpass it. Little prophetic power is required to predict that this portrait will supersede all others—it is a simple result of the union of science with art: the Duke is represented in a sitting posture, and the portrait is admirably adapted for a companion to that beautiful engraving of Napoleon by De la Roche, of Paris.

The capital employed in the coal trade of Northumberland and Durham is estimated at nearly 10,000,000*l.* sterling.

CORNISH STEAM-ENGINES.

The number of pumping-engines reported for the month of Aug. is 28—the quantity of coals consumed being 3358 tons, lifting, in the aggregate, 23,000,000 tons of water 10 fathoms high—the average duty of the whole is, therefore, 54,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal. The following have exceeded the average:—

Mines.	Engines.	Length of stroke	Load in pounds.	Load per sq. inch. on plat.	Strokes per min.	Consump. of coal in bus.	Million lbs. lifted 1 foot by consump. of 1 bush. coal	Average quantity of water per min.
Wh. Prosper..	Roberts's 70-in.	9·75	80,122	16·1	5·6	3048	56·4	742
Great Work..	Leeds's 60-inch	9·0	47,020	12·9	8·2	2473	56·8	195
North Roskear	New 70-inch.	10·0	59,372	12·3	4·4	1944	55·2	214
East W. Crofty	Trevenson's 80	10·33	84,779	12·6	3·2	1880	56·6	181
Carn Brea	,, 76-in.	9·0	78,849	13·4	3·5	1740	57·0	405
Ditto	Sims's 80, 90 in. combined	9·0	67,862	22·9	4·1	1297	65·6	405
Poldice	Sims's 85-in.	10·0	82,040	10·1	7·5	3816	55·9	532
Ting-Tang	Sims's 60, 90 in. combined	9·0	56,514	18·6	4·0	1753	56·4	288
United Mines	Taylor's 85-in.	11·0	97,108	15·5	5·8	3318	87·1	—
Ditto	Cardoza's 90-in.	9·0	99,468	13·7	6·6	4705	55·5	—
Ditto	Eldon's 30-inch	9·0	13,631	16·0	8·3	614	70·0	—
Ditto	Hocking's 85-in	10·0	100,358	14·8	6·2	4480	59·4	—
East Wh. Rose	Penrose's 70 in.	10·0	52,862	12·3	3·7	1586	56·8	495
Ditto	Michell's 70 in.	10·0	58,504	13·6	5·1	1785	75·8	

CORNISH ENGINES.

Means. Lean ascertained, in 1834, by inquiries made on the spot, the number of engines then at work in the county of Cornwall, and their several dimensions. The number of pumping-engines recorded—classified according to the diameters of their cylinders—will be found below.

Since 1835, the economical state of the engines has been constantly and steadily improving—although it is difficult to point out any remarkable general alterations that have been made. That the improvement, however, has been real and important, is shown by the great increase of the average duty. In 1835, it was 46·6 millions; but, since that time, it has risen to 54 and 55 millions. The reported average duty for 1843 was 60 millions; but, as that year only 36 engines were reported, it is, perhaps, not a fair mean for the number formerly included in the list.

The engine which has, for some years past, reached the highest duty, has been a new one, with an 85-inch cylinder, called Taylor's engine, at the United Mines, in Gwennap. It was erected, in 1840, by Messrs. Hocking and Loam, and was especially intended to work more expansively than had hitherto been practised. The boilers were made smaller in diameter than usual, and of stronger plate, so as to stand a higher pressure of steam—the working elasticity being fixed at 40 lbs. per square inch above the atmosphere. Also, an extra number of boilers was provided, in order to give an increased proportion of heating surface; and the strength of the working parts of the engine and machinery was augmented, to withstand the strain caused by the great force of the steam on the piston at the commencement of the stroke. In this engine (on a visit being made in 1841) the steam was cut off at about 1-10th or 1-12th of the stroke—thereby carrying out the principle of expansion to a greater extent than had ever before been attempted, except by Woolf, in his combined cylinder engines, where he expanded it above 20 times. The improvement was soon evident by the duty performed. It was first reported in Dec., 1840, at 74·9 millions, but rose very rapidly. In July, 1841, it passed 100 millions, which no engine had ever done before, except for short trials; and, in Sept., 1842, was reported at upwards of 107 millions.

Mr. James Sims altered an old Boulton and Watt engine at Carn Brea Mine, near Redruth, to his combined cylinder plan; the small cylinder was made 50 inches, and the large one 90 inches diameter; the stroke of the piston 9 feet. The performance of this engine has also been very excellent, generally exceeding, and never falling much below, 90 millions. Its highest reported duty, in 1841, was 95·6 millions; in 1842, 92·9 millions; and in 1843, 94·1 millions.

The progress of the application of the expansion principle has been intimately connected with the deepening of the shafts of mines. In order to render this principle effective in practice, to any great extent, it is necessary that a considerable mass of matter be put in motion by the stroke of the engine. Now, as the mines became deeper, the weight of the pump-rods and balancing machinery necessary for draining them, became, of necessity, increased—thus furnishing the mass of matter required, and affording opportunity of gradually carrying out the improvement involved in the principle of expansion to a further extent, and thereby increasing the beneficial effect obtained from it.

As the expansion was increased, it also became necessary to augment the pressure of the steam on its entering the cylinder—for otherwise the mean or effective pressure throughout the stroke would have been diminished, and the power of the engine accordingly lessened. But the use of Trevithick's boiler has allowed the pressure of the steam to be increased, as required, for greater expansion; and the load upon the piston, instead of being lessened, is now generally much greater than it ever was, or could have been, by the use of steam at full atmospheric pressure throughout the stroke. Many engines have a water load of from 15 to 18 lbs. per square inch on the piston, and the average of 49 engines, in Dec., 1842, was 12·8 lbs. The water load on the atmospheric engine was generally about 7 or 8 lbs. per square inch, and for Watt's engines about 10 lbs.

TABLE

Of the proportions of Heating Surface and Area of Fire Grate, compared with the quantity of water evaporated, and of fuel consumed, in the Cornish and Boulton and Watt boilers.

	No.	Place.	Number of Boilers.	Boiler surface exposed to fire and flues. Per square foot of fire grate.	Per lb. of water evaporated per hour.	Per lb. of fuel consumed per hour.	Weight of fuel burnt per square foot of grate per hour.
				sq. ft.	sq. ft.	sq. ft.	lbs.
Boulton & Watt boilers	1	Albion Mills	1	21·28	0·15	1·294	16·44
	2	Old Ford.....	1	15·78	0·163	1·3	12·21
	3	Practice of Watt & Smeaton..	..	....	0·13	—	—
Cornish boilers	4	Wheal Towan....	3	36·11	1·205	12·75	2·83
	5	United Mines....	3	43·88	1·022	10·72	4·09
	6	Old Ford.....	4	43·7	1·56	13·1	3·64

REMARKS.—Cols. 1, 4, 5. From Mr. Parkes's Paper on Steam-Boilers. Table I.—*Trans. Inst. C.E.*, vol. iii., p. 47.

2. From Mr. Wicksteed's *Experimental Enquiry.* Mean of experiments, 27 to 36, in Table V.

3. The rule adopted by Watt and Smeaton was to allow 8 or 8·2 feet of heating surface for 1 cubic foot evaporated per hour—see *Tredgold's Treatise*, p. 118. This gives the amount in the third column = $\frac{3}{62\frac{1}{4}}$ = ·12 nearly.

8. From *Experimental Enquiry.* Mean of experiments 1 to 6, in Table V.

By this table it appears, that in the Cornish boiler—

1. The ratio of the area of the heating surface to that of the fire-grate, is more than twice as great as in the common boiler.
2. The proportion of heating surface to the quantity of water evaporated, or of fuel consumed, in a given time, is about 10 times as great.
3. The rate of combustion is slower with the Cornish boiler than with the common one, in the proportion of about 1 to 4.

The mode of firing adopted in Cornwall, is spreading the charge of fuel equally and thinly over the fire, and feeding the fire frequently, with small quantities at a time, and with coal broken into small pieces. It is, in fact, merely a return to the methods recommended and adopted by Smeaton and Watt. The former, in his directions for working York Water-Works engine (August 29, 1786), says—"Break every coal that is bigger than a goose's egg, and the oftener you fire, and the thinner, the better." Again, in his directions for the Crousstadt engine—"Feed the fire a little at a time, and often, spreading the fuel equally over the grating; it is no matter how few red coals compose the fire."

Mr. Watt, in his "Directions," recommends "the fire should be kept of an equal thickness, and free from open places or holes, which are extremely prejudicial, and should be filled up as soon as they appear."

The thin fire is favourable to the perfect combustion of the fuel, and consequent absence of smoke; there is, however, a limit to this, determined by the entering of more air than is requisite for the combustion, and the loss of heat expended in unnecessarily raising its temperature. The management of the firing is conducted with great care and regularity—neglect in this particular would immediately show on the face of the duty reports by a decrease of duty, to the discredit of the engineer.

Amount of Duties performed by Engines of a known power.

No. of horses' power.	Maximum of Effect.	Revolutions or velocity p. min.
33	23,400 mule spindles, spinning cotton yarn of about No. 110, with preparation.....	4300
40	476 common throstle spindles, with preparation.....	3772
38 ..	228 looms, 4-4ths wide	100 shots
	100 ditto, 5-4ths ditto	96 ,,
	16 ditto, 6-4ths ditto	90 ,,
	6 winding machines.	
	3 warping ditto.	
	2 beaming ditto.	
24	2 pairs of flour stones, each 4 ft. 8 in. diameter	1 pair at 85 1 pair at 90
	2 pairs for oatmeal, same diameters	120 and 140
	1 dressing machine.	
	1 pair of fanners.	
	1 dust-screen, and sifting machine.	
20	A sugar mill, with rollers, 4 ft. 4 in., by 2 ft. 3 in.	4
18	A sugar mill, with rollers, 4 ft. by 2 ft. diameter	4½

—WEALE'S *Engineer's and Contractor's Pocket-Book.*

WALKER'S EFFLUVIA TRAP.—An apparatus, or, as it is called, a "trap," has been registered by Mr. J. Walker, of Shoe-lane, for preventing the effluvia of drains from rising and infecting the air. The inventor obtained the silver medal for his invention from the Society of Arts, and a model of it can be examined at his residence. It is intended to be placed over gratings, and its advantages are, that its action cannot be affected by stones or rubbish passing through the grating; that it can scarcely be put out of repair; that it cannot be stopped by ice, and that it will prevent the effluvia from the drain as well as from the sewer. There is a chamber or receptacle for water, and chains or links, &c., by which the person to whose management it is intrusted, can empty it of its contents and restore it to its proper position for acting as required. Now that the health of towns has become so interesting a subject for inquiry, it will be of consequence to investigate the claims of this invention and similar ones for public adoption. It is simple in its construction, and appears very efficacious.

THE MINERAL RESOURCES OF FRANCE.

We have been favoured with a copy of the official annual report of the engineers of mines during 1846, principally compiled by M. F. Le Play, chief engineer of the Royal Corps of Mines at Paris, and professor of metallurgy at the School of Mines. It is a most elaborate statistical work on the mineral resources of France, and affords a vast deal of information regarding the mines of that country, the manner of treating the ores, &c., and the progress making in that important branch of science and national industry. There being many English capitalists connected with French mines, we intend giving such extracts as we consider will be most interesting to our readers, and which may serve as a guide to them in their speculations. With the exception of a few mines that are worked by Government, it is by private individuals, or companies, that the mineral riches of the country are explored, under the direction and advice of experienced mining engineers, who have to make an annual report to the Minister of Public Works and General Administration of the *Ponts et Chaussées et des Mines* (roads, bridges, woods, forests, &c.) According to the law of the 15th July, 1845, regarding the police of the railways, and a Royal ordinance of the 15th November, 1846, the engineers of mines are specially entrusted with the inspection of the fixed steam-engines and locomotives employed, both on the railways and vessels, and the state of all the *matériel* connected with them, which will show the onerous duties confided to this important department. The first part of the report enters into details of the researches which have been made in the different mineral departments during 1846, in which have been discovered a few beds of calamine of an excellent quality—in the Isère, Lot, &c., lead, silver, and gold in small portions, and iron, tin, anthracite, and coal, are enumerated. When a demand for a concession to work a mine is made to the Minister of Public Works, the engineers are previously bound to examine the locality, and make their report as to the probability of the existence of ore, &c., and the success of the undertaking, before such is granted, so as to prevent wild speculation and foolish outlay of capital. The inspection of the engineers last year as to the state of the mines throughout the country was very extended, from which it appears that the concessions and works in full operation amounted to 444—viz.: 275 of anthracite, coal, and lignite; 84 for iron ore; 37 for lead ore, copper, silver, antimony, and manganese; 26 for bituminous minerals, pyritous and aluminous earths, and pyritous peat or turf; 22 concessions of rock salt and saline springs—employing 35,320 workmen.

THE IRON MINES OF RANCIE (Ariége)—the concession of which belongs to the different communes of the valley of Vic-Dessos—being most important, as they supply the greater portion of the Catalan forges of the south of France, have been directed for many years by the engineers of mines. Other mines are temporarily conducted by them, with the authorisation of the administration; and at the present day it is chiefly members of that useful corps who are at the head of the workings of the principal coal mines—viz.: those of the Company of Anzin (north), the mines of the Loire, the forges and foundries of the Aveyron, and the coal mines of the Grand'Coombe (Gard).

According to the inspection made of the MINES OF ALGERIA, the grey copper ore of Mouzaïa, in the province of Algiers, and the oxide of iron, &c., in that district, are of an excellent quality, promise well, and are being worked. The ores of the province of Constantine (iron, copper, lead, sulphuretted and oxidated antimony, rock salt, and saline lakes) yield plentifully, as well as those of the province of Oran.

IRON ORE.—The iron ore, commonly called alluvion, is that which chiefly supplies the greater portion of the iron manufactures in France. The total number of the groups, or works, in 1846, amounted to 1457; and miners employed, 9285. As the ores are generally found at the surface of the earth, they are explored in open air, or at a very little depth, without being regular, and with the necessary precautions for the safety of the miners, which have required a strict police surveillance, and the intervention of the Government mining engineers, to confine as much as possible the pretensions of the forgemasters, or proprietors of the land, as they have recently caused a great number of contentions.

PEAT.—In 1846 there were 2498 private, and 622 communal, or parochial, peat beds worked, employing 38,562 persons in the fine season—the price of which is becoming cheaper in consequence of the great use of coal.

FURNACES.—As the furnaces in France are erected by virtue of Royal ordinances, which prescribe their distances, so as not to annoy other parties, the precautions necessary in smelting and treating the ores have rendered it necessary that the engineers should carefully inspect these establishments, so as to make their report, which is an important duty, as they have to examine the manner the ores are treated, and to give their advice to the masters as to the efficacy of the methods. In 1846 there were 1785 furnaces in the different departments in full blast for the treating of ores and the making of *fonte* iron, steel, &c. The number of workmen employed was 41,200. Wood, charcoal, coke, and coal, are discriminately used at the furnaces, according to the description of metal, and the method adopted in making it.

RAILWAYS.—According to the law of 15th July, 1845, respecting the inspection of railways, and the Royal ordinance of 15th Nov., 1846, for the public safety on the different lines, these also come under the engineers of mines. The boilers and cylinders of the locomotives are tested by them to the highest power before they are allowed to run on the rails, and when they undergo any repairs. By a Royal ordinance of the 6th April, 1847, there was appointed in the Department of Public Works a general commission for the inspection of railways, divided into four sections, of which the members of the *Corps des Mines* form a large portion. One chief engineer, and two ordinary ones, residing in Paris, are specially appointed with the inspection of the locomotives, &c., on the railways from Paris to the northern frontier, by Lille and Valenciennes, to Orleans (with branch to Corbeil), to Rouen, St. Germain, Versailles (right and left bank), and Sceaux—making 663½ kilometres—which lines had, on the 31st December, 1846, 295 locomotives: these are visited once a week in the workshops at the termini in Paris; the minor ones, once a month. Chief engineers of the different mineralogical districts have the inspection of the lines in their vicinity. With respect to steam-engines, both on land and on board steamboats, there are 42 towns where they are inspected by a commission. In 1845 there were 7694 boilers, of which 6920 were of French manufacture. Of these, 2020 supplied steam for miscellaneous purposes; and the other 5674 supplied 4114 engines, of which 606 were low pressure, and 3508 high-pressure—being 50,187-horse power—equal to 150,561-horse draught, or 1,053,927 men; these 7694 steam-boilers were divided in 4432 establishments, of 145 different descriptions, in 76 departments.

STEAM-VESSELS.—In 1845, the number of steam-vessels, exclusive of those of the Royal navy, was 259, of different tonnage—having 446 steam-engines of 16,050-horse power, 329 of low, and 117 high-pressure. The average consumption of coal per hour per horse-power was 10½ lbs. low-pressure, and 10½ lbs. high. Steam-vessels are greatly increasing.

CHEMICAL LABORATORIES.—As early as 1783, when the Royal School of Mines was created, a chemical laboratory was annexed to it; and the Royal ordinance of the 5th December, 1816, appointing the administration, made it incumbent that the professor should keep an accurate register of the assays made. According to the decrees of 1845, relative to a special office for the assaying of mineral substances, those parties who wish to obtain an assay, or analysis, of such substance, must deposit a sample of it at the Royal School of Mines, stating the locality from whence it was obtained, and the nature of the bed, vein, or seam; no charge is made, and a certificate is given of the results of the experiment. Besides the above, there are in France 17 other laboratories, where many important experiments are made by the engineers of mines, by submitting the substances to assays and analysation, as well as the produce of the different furnaces. In 1846, there were 389 assays and analysis made in the laboratory of the Royal School of Mines in Paris. In the departments, the experiments have been chiefly confined to anthracite, coal, lignites, coke, iron ore, lead, copper, zinc, cast metals, cements, auriferous pyrites, antimony, mineral waters, &c. Previous to 1835, there existed but a very few geological departmental maps (13 only), executed by the engineers of mines, or foreign geologists of the Royal Corps of Mines. Since that period, this administration has had 54 executed—so that, out of the 86 departments, there only remains 19 to complete the whole geological map of France.

SCHOOLS OF MINERS AND ENGINEERS.—The Royal School of Mines of Paris is principally destined to form mining engineers, who are taken, after undergoing their examinations, from among the pupils of the Royal Polytechnic School. Besides these, there are admitted annually out-door students, who have to undergo the same work and studies as the engineering pupils. Foreigners can be admitted at the request of their respective le-

gations, and are permitted to participate in the various instructions and exercises of the schools; these consist in the exploring of mines, the construction and theory of steam-engines, chemistry, metallurgy, mineralogy, geology, graphic drawing, the construction of superficial plans and subterraneous works, the English and German languages, &c. In the fine season, the pupils are exercised on the land, or in the quarries, in making plans, or travelling in France and foreign countries to study practically the different branches of mining science. The Mining Schools of St. Etienne and Alais are also for completing the education of first-rate engineers, who receive a diploma on leaving the institution, certifying their proficiency in every department of mining, steam-power, &c., &c. Every year a certain number of these mining engineers are authorised by the Government to travel in foreign parts to study the different veins of ore, the direction they take, and the various methods adopted in treating them, and thus acquire most valuable experience.

Coal Mines.—The number of coal mines conceded, and in full work, in 1845, was 449—275 of which were opened in that year. The surface presents a total of 459,551 acres. The extraction of the coal, and draining off the water, is by 100 *molette* engines, and 391 steam-engines—the latter amounting to 10,129-horse power. During 1845, the mines employed 30,768 workmen. The production of mineral, compared with that of 1844, had increased by 4,193,524 metrical quintals—making a total of 42,020,919. The consumption of coal throughout the kingdom had increased—during the last 15 years, progressing more rapidly than the interior production; as, during that interval, foreign coal formed a considerable part in supplying the different manufactories, and for private use—the same as, during the preceding years, the collieries of Great Britain, Belgium, the provinces of the Rhine (annexed to Prussia and Bavaria), furnished quantities for importation, amounting, in 1845, to 64,092,868 quintals. For the first time, since 1831, there was, in 1843 and 1844, a progressive decrease in the quantity of coal imported from Great Britain, which is accounted for in consequence of the export duty imposed in 1842 by the English Government of 2¾d. per kilo.; that having been repealed in 1845, the importations again became as extensive as in 1842. The balance of the trade in coal, during 1845, shows the coal extracted from the basin of the Loire, 14,055,298 metrical quintals; Valenciennes, 9,458,027; Alais, 4,158,675; Cruezot and Blanzy, 3,003,799; Aubin, 1,654,600; Commentry, 1,056,544; from 56 other basins, producing a total of 8,633,976—making 42,020,919 metrical quintals. The foreign coal imported was—from Great Britain, 5,657,489 metrical quintals; Belgium, 13,961,664; Rhenish provinces, 2,406,954; various countries, 45,842=22,071,949: making a total of 64,092,868 metrical quintals. The quantity of coal consumed in the country, was 63,430,692 quintals. The native coal exported was—to Algeria, 143,302 metrical quintals; Switzerland, 136,660; Belgium, 100,297; Sardinian States, 87,113; Spain, 84,394; Egypt, 35,450; Tuscany, 30,341; French colonies, 11,216; Two Sicilies, 8015; Germany, 6414; different countries, 18,974—total, 64,092,868 metrical quintals.

Production and Employ of Iron Ore.—The iron trade continues greatly to develope itself; in 1845, a new increase took place in cast metal. From 1819 to 1845, the quantity annually produced increased from 1,125,000 to 4,389,690 met. quin.; forged iron increased during the same interval from 742,000 to 3,422,613. The working of the iron ore, and the accessory *industries*, to render it proper for fusion in the furnaces, transformed into cast and forged iron, yielded, in the year 1845, a total value of 15,150,639 fr. (606,026*l.*) A certain quantity of ore is annually imported from the Germanic States, the Island of Elba, Switzerland, &c.—Native ore, extracted from the mines, 12,495,168 metrical quintals; foreign ore, imported in 1845—Tuscany, 46,540; German States, 29,266; Switzerland, 22,697; United States, 4413; other countries, 571=12,598,655 metrical quintals. Ores employed in native furnaces, 12,593,359 metrical quintals; exported to the German States and Spain, 5296=12,598,655 metrical quintals. The average price of the quintal of ore, delivered at the foundries, and prepared for fusion, was, in 1845, 1 fr. 3 c.

Production and Employ of Fonte, amounted, in 1845, to 4,389,690 met. quin., thus divided:—Worked by charcoal, 2,464,375; by wood (green, dry, or tarrified) alone, or mixed with charcoal, 184,352; charcoal and coke mixed, 362,893; coke alone, or mixed with coal, 1,378,070; this is divided into two categories:—*Fonte d'affinage* (refining metal), 3,388,664; *moulage*, or moulding, 1,001,026. The quantity of cast metal manufactured by mineral fuel, has not ceased to increase since 1819, but, particularly from 1830, following a rapid progress—whilst, during the same period, *fonte*, made by vegetable fuel, has remained nearly stationary. The following figures show the principal improvements which have taken place in this fundamental branch of iron industry:—*Fonte* by mineral fuel, or mixed with charcoal—1819, 20,000 met. quin.; ditto dry vegetable fuel, 1,105,000 met. quin.; 1822, 30,000—1,077,810; 1824, 53,000—1,922,999; 1825, 44,000—1,941,665; 1826, 55,684—2,002,747; 1827, 73,674—2,090,538; 1828, 215,700—1,993,477; 1829, 271,472—1,899,777; 1830, 271,031—2,392,577; 1831, 275,854—1,972,200; 1832, 303,115—1,947,237; 1833, 392,803—1,968,195; 1845, 1,740,963—2,648,727. Notwithstanding the high import duties, which restrain this trade, there enters annually into France a large quantity of *fonte*, which is employed with the French new cast metal, made in the high furnaces of France—in 1845, 4,389,690 met. quin. New *fonte* imported from Great Britain, 229,262 metrical quintals; Belgium, 295,709; German States, 14,244; Sardinian States, 8150; Switzerland, 4588; Tuscany, 3971; different countries, 556,485; old *fontes* of various sorts, 760,083—total, 5,706,258 metrical quintals. The employ of the above was as follows:—New and old *fontes*, for the production of bar-iron, 4,083,934 metrical quintals; ditto for cast steel, 52,388; ditto for moulding of the first fusion, 593,744; ditto second fusion, 969,217; old *fonte* passed through the high furnaces, 15,814; ditto exported to various countries, 1161 metrical quintals.

Production and Employ of Forged Iron.—The production of forged iron amounted, in 1845, to 3,422,613 quintals, divided as follows:—English *affinage*, 2,027,723; ditto Comtois, 829,412; ditto Champenois, 240,163; ditto improved, 112,550; treatment of Catalan and Corsican, 97,782; ditto riblons, 69,942; Wallon *affinage*, 40,902; ditto Nivernais, 4139 met. quin. The following shows the rise of mineral fuel, since 1819, in the making of malleable iron, which has progressed more rapidly than in that of *fonte*:—Iron made partially or exclusively by charcoal, in 1819, 732,000 met. quin.—exclusively by coal, 10,000 met. quin.; 1825, 1,024,792—410,696; 1835, 1,081,592—1,013,795; 1845, 1,084,785—2,337,828 met. quin. Besides the above, a certain quantity of foreign iron, from Great Britain and Sweden particularly, is annually imported, which is mixed with the French, and also old iron, called *riblons*. New iron made in the different furnaces in France, 3,422,613 met. quin.; ditto imported from Great Britain, 22,340; Sweden, 56,048; ditto Russia, 5517; different countries, 1042—84,947 met. quint.; old iron, or riblons, 262,146; old iron from different countries, 153 metrical quintals. The value of rough bars of forged iron, and from *fonte*, in 1845, amounted to a total of 1,448,563*l.*

Production and Employ of Steel.—The steel produced by the French furnaces belongs to two chief catagories—natural, or forged steel, and cemented steel. The natural steel is obtained by a refinage, by means of charcoal, of *fontes*, exclusively produced by that fuel. The cemented steel is obtained from forged iron, exclusively prepared by vegetable fuel, but converted into steel in apparatus called *cementation furnaces*, which generally, throughout France, are worked by mineral fuel. The manufacture of natural, cemented, and cast-steel, by means of coal and coke over vegetable fuel, has progressed in a similar manner to that of *fonte* and iron, since 1826, as follows:—1826, natural raw steel, 32,568 met. quin.; cemented, 15,000; cast, 1580: 1845, natural raw steel, 40,047; cemented, 66,963; cast, 16,735. Foreign countries supply annually a large quantity of raw steel to the French factories for home consumption—as, hitherto, the soil of France has not produced ores suitable for the making of steel. This ore has only been met with in small seams, situated in the Austrian provinces of the Alps, in the Prussian provinces of the Rhine, and several groups of the forges in the north of Europe, particularly in Sweden. During the last century, and the commencement of this, raw steel and wrought, of a superior quality, was imported direct from foreign countries; but, since 1814, they have commenced producing the same description of steel by importing steel *fontes* of the Rhine, to refine them in the group of forges of the east and north-eastern departments, or iron-steel of Sweden—so as to submit them to cementation in the proximity of the coal basins. The quantity of raw and wrought-steel, imported since 1831 for home consumption, was as follows:—Steel in bars, drawn or curved, 1831, 5280; 1835, 7570; 1845, 5550: cast and refined, 1831, 300; 1835, 700; 1845, 870: worked steel, 1831, 4560; 1835, 7870; 870, 5580. The trade in steel, in 1845, was—from native *fontes*, about 30,547; foreign, 9500—40,047. Native cemented iron steel, 50,563; foreign, 16,400—66,963. Steel imported in bars from Great Britain, 1500; States of Germany, 4820; different countries, 100: wrought-steel from Germany, 3590; England, 1990—total, 119,010; which, when manufactured, produced 340,440*l.* The total value of the five branches of the iron trade, in 1845 (viz.: extracting and preparing the ores, manufacture of *fonte*, ditto bar-iron, bar-iron and *fonte*, and the working of steel), yielded 6,644,512*l.*

Metals other than Iron.—Whilst the production of mineral coal, and every branch of iron industry, is increasing yearly in France, that of other metals remains nearly stationary, or decreasing on the return for 1845. Copper: native copper ore, 340 met. quin.; foreign ditto, 1100; sulphur extracted from copper, 11,400; sulphate of copper and iron, 100 met. quin. Lead, sulphur of ditto, silver, litharge, antimony, &c., value, 63,468*l.*

Consumption of Coal.—Since 1838 (which is the last report of the Administration of Mines on the consumption of coal), it has increased considerably. In 1838, the production of native coal was 31,132,525; surplus of importations over exportations, 11,916,345—total, 43,048,870 metrical quintals;—and, in 1845, it was 63,430,692. The production of coal has been, in the Loire, Valenciennes, Alais, Creuzot and Blanzy, Aubin, Commentry, &c., in 1838, 31,132,525; and in 1845, 42,020,919 metrical quintals. Importations from Britain, Belgium, Prussia, and Rhenish Bavaria, &c., in 1838, 12,270,300; and in 1845, 22,071,949. Total number of peat beds, 3433; workmen employed, 58,562; weight, 5,301,823 met. quin.; value, 201,605*l.* Total quantity of iron ore, 24,601,923 met. quin; value, 606,016*l.* Cast metal (*fonte*), 4,389,690; of which 33,576,619 was made by charcoal only, and 2,503,561 by wood and charcoal mixed; value, 207,051*l.* Bar-iron, 3,422,613; value, 2,178,091*l.* Bar-iron and cast metal, 1,449,054*l.* Wrought steel, 40,047; ditto cementation, 66,963; ditto cast, 16,735; value, 344,301*l.* *Fonte*, iron and steel, total value, 6,644,532*l.* The following is an enumeration of the mines:—Copper, 88; lead and sulphur of lead, 60; lead and silver, 172; lead, copper, and silver, 36; silver, 6; tin, 6; antimony, 44; gold, 17; mercury, 5; zinc, 14; manganese, 36; chrome, 2; cobalt, 7; nickel, 2; bismuth, 2; arsenic, 10; graphite, 1—total, 508; worked by machinery of 821-horse power; annual value, 63,467*l.* Bituminous rock, ditto oil, ditto mastic and calphonium; value, 162,688*l.* A great portion is exported to Great Britain, the United States, and Germany.

Note.—The weight of primitive mineral productions in France is by 100 kilogrammes, or metrical quintal. The ton is 1000 kilogrammes, or 10 quintals—equal to 2240 lbs. English; the metrical quintal being equal to 224 lbs.

MINES, METALLURGIC ESTABLISHMENTS, &c., or BELGIUM.

[*Continued from last week's Mining Journal.*]

The preceding tables show that the price of labour did not notably vary from 1839 to 1844; and it may be estimated, that the average pay of a workman in the mines, throughout the province, was 1 fr. 61 c. The quantities of coal extracted in the province of Hainaut were—1839, 2,590,011 tons; 1840, 2,951,781 tons; 1841, 2,968,875 tons; 1842, 3,059,183 tons; 1843, 2,874,453 tons; 1844, 3,290,728 tons. The value of the coal extracted was—1839, 34,346,519 fr. 30 c.; 1840, 36,433,092 fr. 88 c.; 1841, 32,916,530 fr.; 1842, 28,708,753 fr. 32 c.; 1843, 27,630,825 fr. 98 c.; 1844, 30,990,772 fr. The average production of each pit was—1839, 8870 tons; 1840, 9553 tons; 1841, 10,380 tons; 1842, 10,965 tons; 1843, 11,141 tons; 1844, 13,322 tons. The most important *debouchés* of the coal-pits of Hainaut were for those of the Couchant du Mons, France, and Eastern and Western Flanders; for those of the Centre, the provinces of Antwerp and Brabant, and Holland; for those of Charleroy, the numerous metallurgical establishments in that province, and the frontier provinces of France. The following table shows the respective destinations of the coal extracted:—

	1839.	1840.	1841.	1842.	1843.	1844.*
Railways of the *Haut et Bas-Pléau*	850,560	859,380	862,053	946,083	772,467	936,720
Canal from Mons to Condé, towards France	564,580	556,879	721,280	716,702	643,323	734,014
Canal of Antoing, towards the interior of Belgium	540,000	540,000	564,472	591,801	476,862	503,916
Embranchment of canal of Charleroy, to Brussels, opened 1839	32,894	118,398	206,963	212,462	267,914	370,400
Canal from Charleroy to Brussels, opened 1832	„	„	„	„	439,545	485,707	481,756
The Sambre canalisée	234,733	270,677	338,441	321,920	394,321	409,970

* In tons of 1000 kilogrammes.

The following table shows the average selling price of the ton of 1000 kilogrammes (about 2000 lbs. English, in each of the three divisions of the Hainaut.) [We are obliged to retain the Belgian designations.]

		1839.	1840.	1841.	1842.	1843.	1844.
		fr. c.	fr. c.	fr. c.	fr. c.	fr. c.	fr. c.
BASIN OF THE COUCHANT DU MONS.							
Charbon gras	Houille	—	—	—	—	—	—
	Charbon	15 62 ..	12 50 ..	11 87 ..	10 55 ..	12 19 ..	10 50
Charbon demi-gras	Houille	20 00 ..	18 50 ..	18 00 ..	18 00 ..	18 00 ..	18 00
	Charbon	11 00 ..	10 50 ..	10 00 ..	10 38 ..	10 88 ..	9 27
Charbon Flénu	Gaillettes	21 25 ..	22 50 ..	21 25 ..	20 00 ..	20 00 ..	20 00
	Gailletterie	18 40 ..	20 00 ..	19 40 ..	18 00 ..	18 00 ..	18 00
	Fines	8 75 ..	7 50 ..	6 88 ..	7 50 ..	8 12 ..	8 12
BASIN OF THE CENTRE.							
Charbon demi-gras	Houille	18 50 ..	18 50 ..	18 00 ..	19 00 ..	17 70 ..	18 00
	Charbon	10 32 ..	9 83 ..	9 33 ..	8 72 ..	8 38 ..	8 46
BASIN OF CHARLEROY.							
Charbon gras	Houille	23 00 ..	23 00 ..	21 00 ..	20 00 ..	20 30 ..	19 61
	Charbon	16 50 ..	13 50 ..	10 50 ..	9 50 ..	9 79 ..	9 28
Charbon demi-gras	Houille	21 80 ..	21 00 ..	19 00 ..	18 00 ..	18 40 ..	17 58
	Charbon	12 50 ..	11 25 ..	8 50 ..	8 00 ..	7 74 ..	8 30
Charbon maigre	Houille	14 00 ..	14 00 ..	14 00 ..	14 00 ..	18 50 ..	12 25
	Charbon	7 25 ..	6 25 ..	6 00 ..	5 00 ..	5 84 ..	5 40

II. Province of Namur and Luxembourg.

The number of coal mines conceded in this province was 38 in 1839, and 39 in 1840, 1841, 1842, 1843, and 1844. The surface they covered was—1839, 11,158 hect.; 1840, 11,452 hect.; 1841, 11,568 hect.; 1842, 11,568 hect.; 1843, 11,843 hect.; 1844, 12,157 hect. Since 1839, no pit in the province has been worked without a concession. The following shows the number of pits worked and left unworked:—

	1839.	1840.	1841.	1842.	1843.	1844.
Pits worked	35	36	36	36	31	30
Left unworked	3	3	4	4	9	10
Total	38	39	40	40	40	40

The number of concessions in activity, and for which constructions were being made, was—Of the former, 1839, 80; 1840, 79; 1841, 71; 1842, 70; 1843, 67; 1844, 67: of the latter, 1839, 15; 1840, 10; 1841, 10; 1842, 8; 1843, 6; 1844, 6. The greatest and average depths of the pits worked were—Greatest depth, 1839, 276 metres; 1840, 262; 1841, 260; 1842, 260; 1843, 260; 1844, 260: average depth, 1839, 41; 1840, 44; 1841, 46; 1842, 47; 1843, 43; 1844, 48. The average depth, it will be seen, was not considerable, but that was owing to the fact that most of the workings were above the level of the *arenes*; and the great pits, in which the inferior parts of the coal deposits were worked, were only as 16 to 66. The prosperity of the coal trade should not be judged from the number of pits in activity. Thus, though the number was 80 in 1839, and only 67 in 1844, the production increased. This is explained by the fact, that little workings made way for great ones. The extraction of coal was effected—

	1839.	1840.	1841.	1842.	1843.	1844.
By horses	72	68	60	60	58	56
Mechanical apparatus	2	2	2	2	2	2
Galleries	8	7	6	5	5	7

By steam-engines:—1839, 6 machines representing 142-horse power; 1840, 10 machines representing 237-horse power; 1841, 12 machines, representing 283-horse power; 1842, 12 machines, representing 283-horse power; 1843, 14 machines, representing 322-horse power; 1844, 12 machines, representing 277-horse power. All the steam-engines served also for pumping off water. In 1840, 1841, and 1842, there was only one steam-engine, of 6-horse power, specially devoted to drawing off water; in 1843, there were 3 of 86-horse power; and in 1844, 2 of 41-horse power. The coal-pits were also drained by means of galleries, of which the number was—56 in 1839 and 1840, 57 in 1841 and 1842, 58 in 1843, and 59 in 1844. The province of Namur and Luxembourg contained only a small number of pits *à grison*. The ventilation and lighting occasioned no serious difficulty. In most of the pits the circulation of air was established naturally, by means of open communications, shafts, or galleries, between the works and the surface. In the workings which attained the greatest development, chimneys *d'appel*, and, if necessary, the *toc feux*, were employed to increase the airing.

The average number of such chimneys was—15 in 1839, 17 in 1840 and 1841, 18 in 1842, 19 in 1843 and 1844. Generally speaking, the ventilation of the pits has of late years received notable improvements, by the adoption of a divided current of air, and by the care taken to give a direction constantly upwards to the ventilation of the *mines à grison*. Till now, the lamp of Davy has been exclusively employed in those mines of this province. The number of workmen employed in the pits was—1839, 1165; 1840, 1036; 1841, 1190; 1842, 1159; 1843, 1041; 1844, 1110. The average daily salary of each man was—1839, 1 fr. 45 c.; 1840, 1 fr. 44 c.; 1841, 1 fr. 37 c.; 1842, 1 fr. 37 c.; 1843, 1 fr. 38 c.; and 1844, 1 fr. 31 c. From 1836 to 1838 the pay of the men constantly increased, until it attained 1 fr. 61 c. From 1839 it declined. The increase of 1836 to 1838 was owing to the great development which the working of the coal-pits took. The quantity of coal extracted was—1839, 124,397 tons; 1840, 125,058½ tons; 1841, 123,038 tons; 1842, 135,378 tons; 1843, 141,456; 1844, 134,904 tons. The value of the coal extracted was—1839, 824,824 fr.; 1840, 704,338 fr.; 1841, 642,239 fr.; 1842, 707,924 fr.; 1843, 699,876 fr.; 1844, 688,086 fr. Formerly all the coal extracted in the province of Namur was consumed in the province, and in parts of Liege, Luxembourg, and the Brabant; but, of late years, great part of it has been sent towards France. The quantity consumed in the country was—1839, 123,523 tons; 1840, 108,770½ tons; 1841, 106,060 tons; 1842, 128,572 tons; 1843, 130,892 tons; 1844, 117,454 tons. Exported to France—1839, 874 tons; 1840, 16,288 tons; 1841, 16,978 tons; 1842, 6806 tons; 1843, 10,564 tons; 1844, 17,450 tons. The average production of each pit was—1839, 1555 tons; 1840, 1583 tons; 1841, 1733 tons; 1842, 1954 tons; 1843, 2111 tons; 1844, 2013 tons. In the province of Luxembourg, which makes the fourth district, there was only one coal mine worked. The average price per ton of coal, of all qualities, was—1839, 6 fr. 63 c.; 1840, 6 fr. 12 c.; 1841, 5 fr. 22 c.; 1842, 5 fr. 23 c.; 1843, 4 fr. 94 c.; 1844, 5 fr. 10 c.

III. Province of Liege.

The number of mines conceded was—1839, 69; 1840, 76; 1841, 80; 1842, 80; 1843, 81; 1844, 83. The number provisionally allowed to be worked was—1839, 41; 1840, 34; 1841, 29; 1842, 29; 1843, 28; 1844, 29. The extent of surface conceded was—1839 (*hectares*), 17,481 60; 1840, 18,473 00; 1841, 20,244 40; 1842, 21,326 80; 1843, 21,043 17; 1844, 22,349 00. The extent of surface provisionally conceded was—1839 (*hectares*), 10,351 70; 1840, 10,351 70; 1841, 9044 20; 1842, 8071 90; 1843, 7382 43; 1844, 7372 43. The mines, in 1839, worked were 99—left unworked, 11; 1840, 90—20; 1841, 86—23; 1842, 83—26; 1843, 79—30; 1844, 75—37. The number of pits in activity was—1839, 110—at which works were in construction, 18; 1840, 109—15; 1841, 103—11; 1842, 101—8; 1843, 102—5; 1844, 92—7. The maximum depth of the pits worked, in 1844, was 510 metres; the average depth, 151 metres. The number of steam-engines employed in the extraction of coal, some of which were also used to draw off water, was—1839, 59 machines, representing 1303-horse power; 1840, 65—1457-horse power; 1841, 74—1594-horse power; 1842, 75—1701-horse power; 1843, 77—1765-horse power; 1844, 1639-horse power. The number of machines for drawing off water was—1839, 31—3223-horse power; 1840, 33—3603-horse power; 1841, 34—3757-horse power; 1842, 35—3877-horse power; 1843, 36—4152-horse power; 1844, 39—4104-horse power. It will be observed, that more than double the power required to extract coal was necessary for drawing off water. Besides the above, other means were also employed for the same purpose. In the district of Huy no steam-engine was specially employed to remove water. In this province the authorities of the Mining Department caused particular attention to be paid to the ventilation of mines, especially in the coal-pits *à grison*. They permitted only the ascending plan of airing in the mines, which produced carburetted hydrogen gas. The steam-engines employed in ventilating mines were—1 engine, of 20-horse power, from 1839 to 1841; 2, of 28-horse power, from 1842 to 1844; 66 *toc feux* in 1839, 55 in 1843, and 49 in 1844. In two districts the mines were ventilated *naturally*, or by the aid of chimneys.

The lamp of Mueseler was first most appreciated in the province of Liege; but it was not until 1844 that it came into use in a notable manner. From 1845, it begun to carry on a formidable rivalry with Davy's lamps, and now it replaces it almost every where, as the Davy lamps get worn out. The following shows the numbers of each sort of lamps that were in use:—Davy lamps, 1842, 8535; 1843, 8220; 1844, 7610; 1845, 5517; 1846, 5564. Mueseler lamps, 1842, 424; 1843, 899; 1844, 1225; 1845, 3156; 1846, 5876. The number of men employed in the mines was—1839, 11,089; 1840, 10,548; 1841, 10,241; 1842, 10,788; 1843, 9358; 1844, 9661. Their daily wages averaged—1839, 1 fr. 82 c.; 1840, 1 fr. 71 c.; 1841, 1 fr. 68 c.; 1842, 1 fr. 57 c.; 1843, 1 fr. 44 c.; 1844, 1 fr. 46 c. The decline, it will be noticed, was very considerable. The quantity of coal extracted shows an annual increase; whilst, up to 1843, the total value diminished. The number of tons extracted was—1839, 755,752 97; 1840, 853,123 61; 1841, 935,853 95; 1842, 946,902 45; 1843, 966,365; 1844, 1,019,908. The value of the products was—1839, 9,952,252 fr. 43 c.; 1840, 9,205,854 fr. 35 c.; 1841, 8,952,531 fr. 09 c.; 1842, 8,621,649 fr. 07 c.; 1843, 7,846,763 fr. 92 c.; 1844, 8,173,333 fr. The average yield of each pit was—1839, 6870 tons; 1840, 7827 tons; 1841, 9086 tons; 1842, 9375 tons; 1843, 9474; 1844, 11,083 tons. The coal extracted in this province was consumed in Leige, Limbourg, France, and Holland. France received by the Meuse, in 1843, 73,259 tons; 1844, 61,719 tons; Holland, in 1843, 72,707 tons; 1844, 65,025 tons. The selling price underwent a decline, as will be seen from the following statement of the average cost per ton of coal, *gras* and *maigre*:—1839, 14 fr. 81 c. *gras*, 9 fr. 16 c. *maig.*; 1840, 11 fr. 56 c.—8 fr. 18 c.; 1841, 9 fr. 85 c.—7 fr. 18 c.; 1842, 9 fr. 54 c.—7 fr. 88 c.; 1843, 9 fr. 17 c.—6 fr. 77 c.; 1844, 8 fr. 90 c.—7 fr. 07 c.

[*To be continued in next week's Mining Journal.*]

ACCIDENTS.

Wheal Mary Consols, St. Neot.—James Trembath, having blasted a hole at the bottom of a sink, in the 60 *fm.* level, went down too quickly after the explosion, to examine the effects of the blast, when the deleterious vapour caused his death by suffocation.

Consols Mine.—A scale of ground fell upon J. Nichollas, and killed him.

Wednesbury.—J. Ramsdale was killed by an explosion at Mr. Russell's Colliery: it appears that the men were proceeding to their work, and the "doggy," as usual, was trying whether or not there was any danger, when he discovered the presence of the sulphur; but, before he could screw his safety-lamp, the explosion took place, and he and the unfortunate deceased were blown away for several yards against some doors in the pit. The "doggy" was not seriously injured, and immediately reascended the pit with the other workmen until the sulphur cleared away.

Hately Heath, near West Bromwich.—M. Banner, aged 11 years, fell down a shaft, and was killed.

Machinery Accident at Smethwick.—On the morning of Tuesday last, as a man, named Joseph Bloxledge, employed as a fitter at the London Works, was in the act of placing a plate of iron underneath a corrugating machine, in order that it might undergo that process, his right hand accidentally came in contact with the dies of the machine, and lacerated it in a frightful manner, and a finger was completely torn off; the poor fellow had his hand amputated, and now lies in a painful state.

Roschall Colliery, Lanarkshire.—The body of Mr. D. Errington, viewer to Messrs. Addie and Miller, ironmasters, was found at the bottom of No. 3 pit at this colliery, and the cage in which the men descend standing upon the top of it: as he had previously determined to ascend the shaft, it is supposed he had either become entangled with the cage, or had laid hold upon it when ascending; and, not being able to retain his hold, had fallen to the bottom, and was killed by the fall. He was skilful in his profession, and is deservedly regretted by a numerous circle of friends.

Common Side, Wolverhampton.—T. Bailey was killed while at his work.

Porto Bello, Wolverhampton.—J. Jones was killed by an explosion here.

Phœnix Colliery, near Burslem.—J. Turnock having prepared a blast, and, seeing that the powder did not go off, returned to the spot, and instead of lighting another match lighted the old one, which being burnt down to the powder caused the explosion to take place before he had time to remove from the spot; the fall of coal came down upon him, and killed him almost instantaneously.

Brown Hills, near Burslem.—N. Farnworth, by a sudden jerk, whilst ascending a shaft at the Newfield Colliery, was thrown out of the corf, and fell to the bottom of the pit, a distance of 70 yards: he received such injuries on the head that he died in about two hours afterwards.

Dudley.—As S. Bryan, a stone miner, was preparing to explode some gunpowder in the pit of Messrs. Blackwood, at the Dock, about a ton of stone fell, and killed him on the spot.

A miner, named Frac, aged 46, and father of six children, descended in the lignite mine of St. André de Glérargues (Gard) to seek some tools which had been left there two months before; as he did not return, another man went down, and successively two others, none of whom came back; at last a fifth went down, but with the precaution of a rope being tied round his waist; as he also did not return, the persons above hauled him up, when he was discovered to be lifeless—with care he was soon recovered, but the others perished.

REGAL SPLENDOUR FROM ROYAL WASTE.

In the *Times*, of August 24, quoting the *Globe*, is a bill of fare, comprising the expenditure of the Royal household for the year 1846; from the following items of which, invaluable in a statistic point of view, we are enabled to present a continuation of the novelty for the inspection of the curious:—The expenditure for wax candles is 1917*l.*; lamps, 4166*l.*; tallow candles, 679*l.*—total expense for one year's lighting, 6762*l.* Again, we take the following items:—Butchers' meat, 9472*l.*; poultry, &c., 3633*l.* fish, 1979*l.* Now, from the experiments and researches of Mr. Radley, on the utility and application of culinary refuse to the production of gases for illumination, for which he secured her Majesty's Royal Letters Patent in 1845, it appears that the culinary refuse of the Royal household, and the same may be inferred of the residences of the noble and wealthy, would yield sufficient oil gas to illuminate brilliantly the entire establishment producing it. He finds, by observations, that, in the domestic routine of such establishments, the proportion of refuse from each of the three above items is—one-fifth of butchers' meat; one-fourth of poultry (nearly); and one-third of fish (nearly). His experiments on the large scale indicate the volumes of rich and pure oil gas from each ton—

1 ton (2240 lbs.) of butchers' refuse = 16,560 cubic feet of gas.
1 ton (2240 lbs.) of poultry " = 12,400 "
1 ton (2240 lbs.) of fish " = 7640 "

Now, if we assume that her Majesty's purveyors charge 20s. for 25 lbs. of meat, on the average; and 20s. for 20 lbs. of poultry; and 20s. for 30 lbs. of fish—we arrive at these data:—

Butchers' meat, 9472*l.* × 25 lbs. = 236,800 lbs. of meat, of which one-fifth is culinary refuse = 47,360 lbs. = 21 tons.

Poultry meat, 3633*l.* × 20 lbs. = 72,660 lbs. weight of poultry, whereof one-fourth becomes refuse = 18,165 lbs. = 8 tons.

Fish, 1979*l.* × 30 lbs. = 59,370 ÷ 3 = 19,790 lbs., or 9 tons refuse.

	Cubic ft. of gas.
Then 21 tons butchers' meat refuse, by 16,560 cubic feet, per ton, equal to	347,760
8 tons of poultry refuse, by 12,400 cubic feet per ton ..... "	99,200
9 tons of fish refuse, by 7640 cubic feet per ton ..... "	68,760
Total	515,720

Here 515,720 cubic feet, total volume of gas, which, being too rich for economical illumination, is to be diluted by Mr. Radley's patent process, with twice its volume of hydrogen gas, at a cost of 4d. per M cubic feet—thus attaining the volume of 1,547,000 cubic feet of gas, equal in illuminative power to gas from cannel coal. Now, with the use of Mr. Radley's electro-thermic Argand plug burner of porcelain, also patent, 4000 cubic feet of gas per annum is an ample supply to aliment one burner 5 hours each day throughout the year. Then, 1547 M cubic feet ÷ 4 M, the individual annual demand of one burner, we have 386 burners capable of taking the place of, and superseding in every respect, the lamps located in the chandeliers, candelabras, &c., of her Majesty's palaces.

But as 100 feet of London coal gas is equal in light-giving power to 5 lbs. weight of tallow, and 3 lbs. weight of wax candles, and cannel coal gas is of double the illuminative power of London coal gas, we must declare 50 feet of our gas, from animal refuse, as equal to 5 lbs. weight of tallow, and 3 lbs. of wax candles; therefore, the real economy of this mode of obtaining light will be 1,547,000 ÷ 50 = 30,940; and 30,940 × 5 lbs. of tallow = 154,700 lbs. weight of tallow candles = 70 tons; or 30,940 × 3 lbs. of wax = 92,820 lbs. weight of wax candles = 41 tons. This system of domestic economy is not confined to her Majesty's household, and the mansions of the noble and wealthy; but it can be practised all over the kingdom. The consumption of butchers' meat in England alone yields 100,000 tons annually of bones, &c., from which, by the above-named patent, upwards of one million of gas burners could be fed *gratis*.

When her Majesty, in her first North British progression, visited Holyrood House, she expressed her surprise and chagrin, that her English palaces could not be illuminated with equal *éclat*. Her Majesty has the power to eclipse Modern Athenian splendour.

LITERARY NOTICES.

The True Cure for Ireland—the Development of her Industry; being a Letter to the Right Hon. Lord J. Russell, M.P., by the Rev. G. H. STODDART, A.M. *With a notice of the Irish Amelioration Society, on the Plan of Mr. J. W. Rogers, C.E.* London: T. W. Saunders, Charing Cross, 1847.

Notwithstanding the numerous prescriptions which are continually published, and which are to prove, if adopted, a panacea for all the ills of Ireland, we hail their appearance as tending, at length, to lead the landowners, or the executive, or both, to adopt such measures as will lead to the full development of the riches of her soil, and the advancement and happiness of the people. The author of the letter under notice, appears to us to have taken up no new position; but he expresses himself in language calculated to impress his subject strongly on the minds of his readers, and render his appeal not in vain. His principal argument is, that Ireland needs the development of her industry (a theme of all writers on the subject for the last 20 years), to the various branches of which he alludes, such as her fisheries, the manufacture of peat charcoal, the culture and manufacture of flax, &c. With respect to the production of peat, and the consequent reclamation of 3,000,000 acres of the waste lands of Ireland, he enters more at length, giving extracts from the plan of Mr. J. W. Rogers, of Dublin, as published by Ridgway: this work we have before noticed at length; it shows how the bogs of Ireland, being for the most part in elevated positions, can be easily cleared and drained, brought into successive cultivation, as patch after patch is cleared, and where the homestead of the peasant farmer would take the place of the now sterile bog; while, during the operations, a valuable article of commerce would be produced, returning a large profit on the capital employed, and rendering great benefits to the iron trade—as peat charcoal, containing no sulphur, produces a most superior description of iron, when used either in smelting or working; and Mr. Rogers calculates a surplus revenue of 213,605*l.* per annum, on a capital of 600,000*l.*, besides a provision for the peasantry, earned by their own labour. The pamphlet is well worth attentive perusal.

An Answer to Lord G. Bentinck's Address to the Electors of the Borough of King's Lynn, on the Eve of the General Election of 1847. By "PLAIN FACTS." Smith & Elder, Cornhill.

We have received the above pamphlet, which has just issued from the press. In it the author traces the progress made in free-trade principles for some years, more particularly as leading to that crowning measure—the repeal of the corn laws. To an observation of his lordship's, in which he prides himself "for not having been one of those who violated every political principle declared or implied, on which six years ago they sought and obtained the confidence of their countrymen," it is asked, "does he suppose that the honest, inward conviction of a man is to be sacrified to any opinions which he may have entertained six years ago? Is a representative, more particularly a Minister, who is responsible to the whole country, to say that I was an advocate for protection, but circumstances have convinced me of my error—nevertheless, I must act upon my former principles, although they are against my conscience, and injurious to the welfare of my fellow countrymen." These are precisely the arguments Bentinck and his clique have used to Sir R. Peel, whose measures were, doubtless, brought about under the thorough conviction, that society was ripe for the change, and that further delays would be dangerous. We have not space to extract largely; but recommend the perusal of the pamphlet, not only to supporters of free-trade, but to Protectionists also, as we think it possible it may open even *their* eyes to some small extent. Among other arguments which must remain unanswerable by the opponents of free-trade, is the fact, that in a list of 13 articles, upon which the duties had been repealed or lowered, between 1842 and 1847, the revenue had increased to the enormous sum of 176,309*l.* There are various other statistical data, by which the author's views are supported.

TIMBER MINING IN AMERICA.—On the north side of Maurice River Creek, New Jersey, the meadows and cedar swamps, as far up as the fast land, are filled with buried cedars to an unknown depth. In 1814, or 1815, an attempt was made to sink a well curb near Dennis Creek landing; but after encountering much difficulty in cutting through a number of logs, the workmen were at last compelled to give up the attempt, by finding, at the depth of 20 ft., a compact mass of cedar logs. It is a constant business near Dennis Creek to "mine cedar shingles." This is done by probing the soft mud of the swamps with poles, for the purpose of discovering buried cedar timber; and when a log is found, the mud is cleared off, the log cut up into proper lengths with a long one-handled saw, and these lengths split up into shingles and carried out of the swamp ready for sale—this kind of work gives constant employment to a large number of hands. The trees found are from 4 to 5 ft. in diameter—they lie in every possible position, and some of them seem to have been buried for centuries. Thus, stumps of trees which have grown to a greater age, and which have been decaying a century, are found standing in the place in which they grew, while the trunks of very aged cedars are lying horizontally under their roots. One of these instances is thus described in a manuscript from Dr. Beesley, of Dennis Creek, who has himself "mined" many thousand cedar shingles, and is now engaged in the business. "I have in my mine a cedar some 2½ ft. over, under a large cedar stump, 6 ft. in diameter. Upon counting the annual growths of the stump, I found there were 30 of them in an inch, so that there were 1080 in the 3 ft. from the centre to the outside of the tree—the stump must thus have been 1080 years in growing. To all appearances the tree to which it belonged has been dead for centuries; for after a stump in these meadows decays down to the wet, there is no more decay—none, at least, that is perceptible. Now, we have 1080 years for the growth of the stump, and 500 for its decay, and 500 for the growth of the tree under it; for this must have grown and fallen before the tree, to which the stump belonged, sprouted. We are thus carried back for the term of perhaps 2000 years, of which 1500 are determined, beyond question, by the growth of the trees." The better opinion is, that these trees have gradually sunk through the soft mud of the swamps, after having attained their growth and fallen; many, however, have decayed in their erect position, for the swamps are full of stumps standing as they grew. Within a short distance of the mouth of Dennis Creek, and about three miles from any growing timber, can be seen at low water, in the bed of the stream, numerous cedar and pine stumps, about 6 ft. below the surface of the meadow, with the bark still adhering to some, when the mud is removed. As one passes up the creek a few miles, the stumps approach the surface, and near the edge of the live swamps they become very numerous.—*Scientific American.*

Mining Correspondence.

ENGLISH MINES.

BARRISTOWN.—The 18 fm. level end west is worth about 10*l.* per fm.; the lode in the north side of the level works rather better; the winze sinking behind this end is worth about 12*l.* per fm.; a rise, in the back of the same, is worth about 16*l.* to 18*l.* per fm. The 12 fm. end, on the middle lode, is worth about 8*l.* per fm; the western stopes, in the bottom of this level, is worth about 10*l.* per fm. The pitches, on the whole, do not look altogether so well as for some months past. The shaft, on the slob, is going on with all possible vigour, and I have no doubt, as soon as we get it down, we shall increase our raising of ore; we have driven the piles, and are now about the dam, to keep back the tide. We shall complete the collar, and commence sinking at the surface, also to rise from the 18 fm. level end, during the next month. Since writing the above, I have heard a better account from the 18 fm., west end.—August 20.

BEDFORD UNITED.—At Wheal Marquis, the lode in the bottom level, east and west of the sump-winze, is worth each 50*l.* per fm. In the 80 fathom level east, the lode is 3 ft. wide, and worth 14*l.* per fm.; the pitch in the back of this level is much improved, the lode being worth from 30*l.* to 40*l.* per fm.; there has been no lode taken in the western winze in this level. In the 70 fm. level east, the lode is still 2 ft. wide—good work. There is no alteration in the 58 fm. level east. At Liscombe, the lode in the adit level east is 2½ ft. wide, producing good stones of ore, and altogether a little more kindly; and in the rise in this level the lode is 2 ft wide—spar, mundic, and spots of ore occasionally. The lode in the level driving east of the south engine-shaft, is 3 ft. wide, producing good stones of ore. There has been no lode taken down in the adit level. We weighed at Morwelham, on Saturday last, June ores, 102 tons 15 cwts. dry.—August 24.

CALLINGTON.—Since writing the last report, an improvement has taken place here, which, in our opinion, enhances the value of this property more than anything previously discovered: it is in the 70 fm. level east, where we have got through the great cross-course, and opened on a rich course of copper ores, worth 40*l.* per fm.; the lode is of a different character here from any part we have seen to the west of the cross-course. In the 40 fm. level, we have commenced driving east, having a regular branch, with a south underlie, producing copper ores. Sinking on the course of the lode at Kelly Bray, we find it 4 ft. wide, composed of spar, peach, mundic, and black jack, with a small quantity of black copper ore: rising from the 25, against this, the lode is of just the same composition. We expect to hole this week. The engine-shaft is sunk 7 fms. below the level, and perfectly dry. We have about 6 tons of ore dressed here. In the 125 fm. level, south of Johnson's engine-shaft, the lode is 1 ft. wide, intermixed with silver-lead ores; in the rise in the back of this level, the lode is much the same. Sinking from the 112 upon the rise, the lode has not been taken down. In the 112 north, the lode is 1 ft. wide—very loose, and spotted with lead; in the south end it is of just the same size, and of a more promising character. In the 100 south, the lode is small and poor; the north end is laying open ground that will work at a moderate tribute. In the 90 fm. level, no lode has been taken down. A winze has just been communicated from the 80 fm. level, from the north end, laying open a good piece of ground. In the north mine the lode in the 100 north is producing work of a moderate quality: the ground is of the most congenial character, and thus has been, and still continues to be, the most productive level that we have had. To the north of the shaft, on the south end, the ground is rather harder than usual; the back will work at a moderate tribute. In the 90 fm. level, we continue to open tribute ground. In the 80 fm. level, the lode is producing silver-lead ores. The 70 fm. level north is opening tribute ground. In the 40 fm. level north, the lode is unproductive. The men are now driving west on the last lode we have intersected, and breaking stones of copper ore. We have now five east and west lodes, within about 60 fms.; the two middle ones, dipping towards each other, can be more fully proved at a future day, by cross-cutting to the east of the cross-course, where the ground is favourable.

CARADON WHEAL HOOPER.—No doubt but, by what has been stated by me in former reports, you have been fully expecting to hear of the great middle, or Daw's, lode having been cut by this time, which is about 12 fms. south of the shaft, and which is expected to form a junction, a little above the 50, with two other lodes. I am well assured you will be satisfied, when I state the cause of delay in sinking the last 4 fms.; we had to cut through a hard bed of ironstone—this greatly impeded our progress, or the lode would have been cut to the 80 by the time the shaft was sunk to that level; having cut the caunter lode in the plat, which was making south of east 40° in a fathom, being a kindly lode, as we could drive on it for 3*l.* per fathom, to avoid driving through the ironstone, which would have cost from 20*l.* to 25*l.* per fm., we commenced driving on its course, having extended 7 fms., and again met with the ironstone: I then thought it advisable to put the men to cross-cut the country in right angle, towards the lodes; in driving through 2½ fms. of hard ground, we cut into a beautiful channel of killas; the same caunter lode has heaved round on us, and is taking nearly due south—a kindly lode, letting out much water; the end is now driving for 3*l.* 10s. per fm., contracted for a fortnight; if it was now to be set, it would be taken for less. We have about 7 fms. more to drive, which will be accomplished in about 15 days—the ground continuing as at present. The cross-cut north is extended north 9 fms., a complete bed of granite—ground hard; but, in this end, we have a small cross-course, which greatly facilitates our driving.—August 24.

COATLITHE HILLS.—During this week, the level east from A shaft has been driven about 4 ft.; the vein in the end is still principally composed of iron, rider, spar, clay, and good stones of ore—producing nearly a quarter of a ton per fm. The ground in the horse level is rather better for driving than it was, and I hope to get it holed to the shaft in about six weeks; it has been driven about 1 fm. during the week. I intend to make preparations for dressing up a small parcel of ore in a month or two.—August 21.

CUBERT SILVER-LEAD.—The ground continues in the engine-shaft rather hard, and very wet. The lode in the 35 fm. level, going west, is 2 ft. wide, composed of hard spar, mundic, white iron, and rich lumps of lead; the ground is also getting more easy for driving; in the same level, going east, the lode is large, chiefly spar and mundic—a little lead, but not rich. In the 25 fm. level, going east, the lode is 2 ft. wide, at present unproductive. The new (western) surface shaft, sinking in the Earl of Falmouth's land, is sunk from surface 18 fms. 3 ft., which is now got down to water; we have, therefore, commenced driving the cross-cut from the 15 fm. level, and have, per calculation, about 3 fms. to drive. With respect to the tribute department, there is nothing new to notice. Our computed 60 tons of silver-lead ores were sold on Thursday, to Messrs. Walker, Parker, and Co., at 11*l.* 16s. per ton (21 cwts.) = 708*l.*

DEAN PRIOR AND BUCKFASTLEIGH.—In the deep adit west, we are driving on the south part of the lode, which is somewhat improved, with spots of ore; price for driving, 55s. per fm. In the 10 fm. level the lode is about 9 in. big, composed chiefly of spar; in the bottom end, or 20 fm. level, driving west, the lode is of a very promising character. In extending these levels to hill, the lode is not only improving; but the strata by the side of the lode, is easier for driving, and congenial for ore. We have commenced sinking the new wheel pit for the 40 ft. wheel—the point having been determined when Capt. Carpenter was here, on Tuesday last—which will be fixed in a line to command a shaft in Mr. Buller's land, which it is proposed to sink, as also the present engine-shaft—the other two wheels to be applied to crushing and stamping, as also drawing the work and attle to surface, which will be much in favour of future proceedings, as regards economy of time and money. All the surface work is progressing fairly together, with the several portions of the water-wheel, which will be ready in time for fixing, on having the castings on the ground. We have set the wheel pit, together with the lobby, 3s. per solid fathom, rock excepted, and shall make all progress possible, in order to carry the work out. The lode in the pitch, in the back of the 10, is without alteration; that taken in the bottom of the 10, referred to in last report, has been given up.—Aug. 23.

DEVON AND COURTENAY CONSOLS.—In the end, driving east in the 30 fm. level, we have intersected a slide or cross-course dipping east, which, from its appearance, is the one discovered in the engine-shaft some 8 or 10 fms. above this level; it has not yet been cut through, so as to ascertain if the lode is heaved; in the same level, driven west from cross-cut, we intersected a cross course, and have driven south upon it 2½ fms., but have not yet discovered the western part of the lode. In the deep adit level the lode is 1½ ft. wide, composed of spar and soft killas, with some spots of lead ore. In the shallow adit level the lode is 2 ft. wide, composed of mundic, can, and spar, and branches of lead ore. The men in the engine shaft have been engaged since Monday in putting in their sinking lift.—August 24.

EAST CROWNDALE.—We have cut the north lode, in the Rix Hill adit level, and, I am glad to say, it is of a most promising appearance; it is about 5 ft. wide, composed of peach, capel, mundic, and most excellent work for tin—in fact, the whole of the lode is saving work. We shall now proceed to hole the shaft sunk on the course of the lode to the adit level, for ventilation, and convenience of drawing the stuff; after this is completed, we shall proceed to cut the two lodes, still to the south—the middle lode being considered the main lode; in fact, I believe these lodes, in about 8 or 10 fms. under our adit level, will concentrate; and I confidently expect, that you have got a continuation of rich tin ground for upwards of 150 fms. in length. I came to this conclusion, from the extensive workings of the old men at the surface, and from our having cut a rich lode in the adit level, under all their operations. I am glad to state, that the appearance of the copper lode, cut in our engine-shaft, continues to improve; is about 2 ft. wide, composed of copper, mundic, capel, peach, and spar. We look forward to good returns from this lode, when it is cut in the 50 fm. level, from the very striking improvement in its character the deeper we go; we have sunk, in the past week, about 9½ ft.—the ground under the lode having become much harder, makes sinking difficult and spare. Our engine and pitwork are all in good order.—August 21.—[In our Journal of the 21st inst., by mistake, we printed the word "unfavourable," instead of "favourable," in regard to the ground sinking through in the engine-shaft.]

EAST TAMAR CONSOLS.—The lode in Harrison's shaft is 2 ft. wide—fluor-spar and ore—a very kindly lode. The lode in the 54 fm. level north is very much improved; it is 2 ft. wide, work of a good quality; in the same level south, the lode is 20 in. wide—saving work. The lode in the 46 north is 18 in. wide—fluor-spar and silver-lead ore; the lode in the same level south is in disordered ground. The lode in the 38 south is 14 in. wide—work of a good quality. Charlotte's is just the same as last reported on.—August 24.

GREAT MICHELL CONSOLS.—In the 85 fm. level east, the lode is producing good stones of ore; in this level west, the lode is composed of mundic, spar, and stones of ore. In the winze sinking below the 22 fm. level, west of the engine-shaft, the lode continues to produce some saving work.—Aug. 24.

GUNNIS LAKE.—At Chilsworthy, the lode in the 25 fm. level, east of Bailey's shaft, is 2 ft. wide; and in this level west, the lode is 2 ft. wide, composed of spar, mundic, and ore. In the 12 fm. level west, we are still driving north.—August 24.

GWINEAR CONSOLS.—The ore ground is looking quite as well as last reported, and, in addition, have cut it 5 fms. further east, by rising in the back of the adit, a course of ore 2 ft. wide. Tredinnick's lode is still saving work for tin. We set the engine-house to build, and engine-shaft to sink yesterday; also a pitch in the back of the adit, west of Stephens's shaft, at 1s. 6d. in 1*l.* tribute; I think they will get wages at that price. Stephens's is the last shaft cleared up.—August 21.

GREAT WHEAL MARTHA.—The 40 fm. level east is now driven 4 fms. 4 ft. 8 in.; the lode is still divided by the horse of killas. We are carrying the south part, which is 5 ft. big—1 ft. 6 in. of which is mundic and copper united, the remaining part being capel and spar. In the western end, we have driven 4 fms. 1 ft. 6 in.; the lode here is 10 ft. big, and we are carrying 5 ft. of the south part, being composed of spar and mundic, with white prian heads, spotted with copper, and presenting a better appearance now than I have seen since we first commenced driving.—August 21.

HAWKMOOR.—The lode in the 15 fm. level, east of Hitchins's shaft, is about 18 in. wide, and unproductive.—August 24.

HEIGNSTON DOWN CONSOLS.—The lode in Bailey's engine-shaft is 3 ft. wide—gossan, spar, and tin, saving work. In the 20 fm. level east, the lode is 3½ ft. wide, composed of gossan, spar, and tin, saving work—a very strong kindly lode; there has been no lode taken down in this level west. The pitches are looking well.—August 24.

HOLMBUSH.—The diagonal shaft is sunk 9 fms. 2 ft. below the 120 fm. level, the ground in which is still favourable for sinking; and the branches of spar, ore, and mundic, last reported on, have nearly passed through the shaft by its underlie south. The lode in the 120 fm. level, west of the great cross-course, is 18 in. wide, composed of spar, killas, and spots of ore. The winze we anticipated sinking below the 110 fm. level (last week) is for the present suspended, until the 120 fm. level shall have been driven far enough west to dram it—the water being so quick we find it quite impracticable. The men are resumed to drive the 110 fm. level south, in which end the lode is 2 feet wide, composed of flookan, spar, and stores of lead. It should be observed the 110 fm. level, and the rise above, are nearly 50 fms. to the north of the 100 fm. level, where the lode is so productive. The lode in the 100 fm. level south is 20 inches wide, composed of flookan and lead, worth 20*l.* per fm., with a beautiful white killas strata on each side of it. We are daily in expectation of intersecting the Flap-jack lode. One of the pitches in the back of this level is still very productive, and the others are yielding a fair quantity of lead; and the men making wages. The lode in the 90 fm. level south is 20 in. wide, composed of spar, prian, and stones of lead; ground favourable for driving. We weighed at Calstock Quay, on Saturday last, July ores, 65 tons, 10 cwt. 2 qrs. Next Friday is our usual day for sampling copper ore, but we intend sampling about 15 tons of rich silver-lead ores, and the month following a parcel of copper ores; and we hope, should the lead lode prove productive (as at present), to sample a small parcel of it the one month, and copper the other, in future.—August 24.

ILAM.—In the cross-cut, the ground is rather hard for driving, owing to a bed of chert, which may be considered, to adopt the terms used in Cornwall, as the capels of the lode, which I hope will prove to be Brown's lode. In the 67 fm. level, east of Robins's shaft, the lode is large, and has still a kindly appearance. Robins's shaft is sunk under the 67 fm. level 11 ft.; we are not carrying all the lode, as it is getting much larger in going down. I would recommend cutting through the lode, to see the north wall, as soon as we get down a fm. or two more. We have not done much in the shaft this week, as the outlet for the water got choked, and the men in the eastern end have been enlarging the plat; this, however, is now effected, and we are again in a fair way of working.—August 21.

LANIVET CONSOLS.—We have suspended the 80 fm. level, west of Elizabeth shaft, until the rise in the back of this level be holed to the winze coming down against it; the leader part of the lode, in the rise, is 18 in. wide, producing some saving work; in the winze coming down from the 70 fm. level, on this rise, the lode is much the same as in the rise coming up against it. In the 70 fm. level, east of Elizabeth's shaft, the leader part of the lode is 18 in. wide, good saving work. The castings for our plunger-lift are all arrived; we hope shortly to complete our alterations in the pitwork, and resume our sinking below the 80.

KIRKCUDBRIGHTSHIRE.—The engine-shaft, sinking under the 40 fm. level, is 5 fms.—the lode rather irregular, say 2½ ft. wide, yielding about one-fourth of a ton of lead per fm.—ground favourable for sinking. The lode in the 40 end west is large, producing 1½ ton per fm. The lode in the 80 end west continues poor. The lode in the 20 end is small, but little more than 1 ft. wide, producing three-fourths of a top per fm. The winze sinking under the 30 fm. level, on the junction west of the shaft, has not proved as the lode did at this place; in the level, at present, it is more inviting. The winze east being at the end of the lead ground, we are now exploring towards the shaft, with a view to stope this ore ground. The stopes in the back of the 20 do not appear to alter much. On the dressing floor, I regret we have not hands to return the ores as fast as I could wish; in the meantime, we are making sharp inquiries for suitable helpers.—August 21.

LEWIS.—The lode in the 60 east is 5 ft. wide, and worth 17*l.* per fm. for tin. The men that were rising in the back of the 60, west of the sump whim-shaft, against Caple's winze, have holed to the said winze, and are now preparing to sink the engine-shaft below the 60 fm. level. The lode in the 50 east is 4 ft. wide, and worth 8*l.* per fm. for tin; the lode in the 50 east, on the south branch, is 10 ft. wide, and worth 9*l.* per fm. The lode in the 40 east is 2½ ft. wide, and worth 3*l.* per fm., and very promising; we are continuing the cross-cut south, in the 40, in order to cut the middle lode—ground favourable; we are also continuing the 30, south from Wheal Oak shaft, towards Bosworgie Town lode—ground favourable. The lode in the 20 end east is 2½ ft. wide, and worth 4*l.* per fm. for tin; in the cross-cut, south from the sump whim-shaft, in the 10 fm. level, we have cut a new lode, 10 in. wide, and worth 6*l.* per fm. for tin, and very kindly; we are driving on the course of this lode, at 25s. per fm. The lode in Praed's shaft, sinking under the 8 fm. level, is 1 ft. wide, unproductive at present.—August 21.

LYDFORD CONSOLS.—The lode in the adit end is looking very favourable—much kindlier than when you were here; the leader part is about 10 in. big, and good saving work for lead, but we are not, as yet, quite clear of the capels: however, I do not think it is unkindly to see a string capel on the back of a lode—or, in other words, so near the surface—as we are; it is also very probable these capels will diminish in depth, as they seem to be smaller in the bottom of the end than in the back; and, most likely, as the capels diminish, the lead will increase. We do not take down our lode more than about once a week; and if the lode improve as much the next week as it did in the last, the prospects at Wheal Mary will be cheering—mind, I do not say it will be the case, but I have a hope. I have not, as yet, had any notice for the meeting; I hope you will not be long before you bring the matter to a close, so as to commence operations, as the concern is very kindly, and it never can have a trial before we go below our present workings, with a small outlay in the beginning, to erect the necessary machinery. I do not see (according to the appearance of the concern at present) there can be any doubt, but that every adventurer, in a short time, will receive all the money he has laid out, and double for it.

MENDIP HILLS.—Our operations in the slag department, during the past week, have been favourable; the beds of slags, from which the top rubbish is now being removed, continue to extend both up and down the valley; we have some hands engaged levelling a piece of ground for the working floors, &c. Part of the castings for the blast-furnace are on the mine—I expect the remainder home in the course of a day or two. No important change has taken place underground since I last wrote you. The lode in the 38 fm. level, south of Stainsby's shaft, is composed of white spar, flookan, and spots of lead in places; the lode in the winze, sinking below this level, is about 3 ft. wide, composed of quartz, flookan, and iron ground; not quite so hard for sinking as it has been.

POLSAITH CONSOLS.—I have carefully examined this mine, and find the length of the sett, on the course of the lode, to be about 500 fms.; the lode has been opened on the back for nearly the whole length of the sett, partly by costean pits, in which the lode has a very promising appearance, varying in width from 2 to 6 ft.—composed of gossan, mixed with quartz, mundic, and flookan (or mineral bias), with rich stones of lead, and yellow and grey copper ore. About 150 fms. south of the north boundary of the sett is a cross-cut adit level, driven from the Polsaith beach, about 38 fms., where it intersects the lode about 11 fms. below the surface, and on which it has been driven about 25 fms.—the lode varying in size from 1½ to 4 ft.—composed of gossan, quartz, mundic, blende, flookan, and rich stones of lead, and yellow and grey copper ore: its course is about 30° north of east and south of west, and underlays west from 2½ to 3 ft. in a fm. About 70 fms. south of this is another adit level, driven from the valley (or ravine) on the course of the lode, in which the lode has a very promising appearance, being from 6 to 8 feet wide—composed chiefly of gossan and quartz, with stones of rich lead ore, varying in weight from 1 to 150 lbs.; these stones are found imbedded in the gossan, which throughout produces a quantity of carbonate and arseniate of lead—the former of which is formed in hexhedial prisms. This splendid lode is in a large elvan course, through which it runs from 30 to 40 fms.; a shaft has been sunk from the surface on its course to the adit, about 9 fms., through a fine gossan: the

east is now into the heave, and the lode is here about 6 fms. to the left hand; two men and a boy are driving on the heave westward. South of this the lode runs, in an oblique direction, through the Polsalth Valley, for about 160 fms., at an angle of about 45°, and then enters the Trebethwick Hill, where an adit has been driven by a former party, from 90 to 100 fms., on the course of the lode. Both above and below this level the lode has been very productive—the deepest working being about 9 fms. below the adit level. No other machinery than a whim was used to draw the water with, which prevented their working deeper. A great deal of ground here, both above and below this level, is worked 4 vay; the portions of the lode now standing have a good appearance, being large and well defined, and there still remains, both in the backs and bottom, some good tribute ground, now in sight. A pitch, in the back, is now working on tribute, at 5*l.* per ton of lead, and another in the bottom, at the same price. An engine-shaft is sinking, by six men, which will intersect the lode about 20 fms. below the adit; and a cross-cut driving, by four men, towards it from the adit level, which will be holed in about a month. Polsalth Consols is situated in a good lead district; it is bounded on the north by the Pentire Glaze sett, from which thousands of tons of lead ores have been raised above and about the sea level; the lodes in this are a continuation of the Pentire Glaze lodes. There are other lodes in this sett which have also produced good stones of lead ore, but have not yet been so far developed as to ascertain their value; one, however, intersects the lode before alluded to, as having been wrought on in the Trebethwick Hill. The ground is generally favourable for working, and stands without timber. In conclusion, I beg to call your attention to that desirable part of the sett, "the valley," which I have no doubt will be found very productive, as the shoots of lead in the Trebethwick Hill are dipping rapidly towards it. I also beg to call your attention to, and would strongly recommend to your notice, the lode in and about the elvan courses, as the lodes in this district have made best in and about them; and I would also recommend, that no time be lost in endeavouring to see the lode, about 10 fms. below the sea level, and under that large and beautiful gossan, which would be about 12 fms. below the present adit level; this, I am of opinion, would tell an important tale. On the whole, I am of opinion, that, if machinery be erected, so as to drain the mine, you will, at no great depth, find it to be a very productive lead mine.

POLGOOTH.—The sumpmen have been for some time, and are still, engaged in fixing the pit-work in the 80 fm. level, which will be soon completed, when the engine will resume drawing the water, which it is capable of doing easily to the bottom of the mine, of which the general appearances are increasingly encouraging. In the 20, 36, and 45 fm. levels, numerous pitches are at work, where the highest tribute given is 10s. in 1*l.* In the 56 fm. level, there are nine pitches working, some very productive. In the 66 fm. level, there are 10 pitches working—equally promising; and several, in the lower levels, at 3s. 6d., 4s. 6d., and 20s. tribute. Four winzes are in course of sinking between levels 56 and 66, and one from the 66 to the 76 fm. level; the lode in these will average 6 ft. in width, and the actual produce has been 7 cwts. of black tin per 100 sacks of 12 gallons: these winzes are thus yielding profitably, and, when completed, an immense extent of valuable working ground will be laid open. The 76 fm. level is found in a much better state than could be expected, and has been already sufficiently cleared to admit of setting 11 new pitches, comprising a very large quantity of good tin ground, some pitches being taken at 2s. 6d. in 1*l.*, and even under that rate: this level has been cleared to its western end, on St. Martin's lode, and is set to be driven there at 40s. per fm., on a large and promising lode, composed of tin, quartz, peach, &c. The clearing of shafts, levels, &c., is still in progress, many of which were overlooked in the last working; and it is remarkable to find so little dead or unproductive ground: already a vast extent of lode is opened, which will afford scope for profitable working for many years to come. From continued drought of late, the water stamps have been nearly idle, which has kept back the returns to about 27 tons of tin per month. The tinstuff is, of course, accumulating fast at surface; it is now there, in value, upwards of 4000*l.*; but when the new steam-stamps in course of erection are completed, the returns will not fall short of 50 tons per month, and, most probably, will exceed that figure.—August 20.

SILVER VALLEY.—The tin lode, in the 50 fm. level, has not been taken down since last reported; but, having cut into the north wall, about 4 in. in both ends (east and west), we can see that it contains some good work. At the silver mine, the lode in the rise, in the back of the 30 fm. level west, is 12 in. wide, composed of flookan, spar, and carbonate of iron—a kindly lode. In the 20 fm. level west, the lode is divided into small branches; the lode in the stopes, in the back of this level, is large, and producing some work of inferior quality; in the stopes, in the back of this level, the lode is 2½ ft. wide, and it contains some rich work for silver and silver-lead ores. At Oak shaft, we are getting on satisfactorily in sinking, and also in rising against, the shaft, and hope to hole to the deep adit in about a fortnight from this time.—August 23.

SOUTH TAMAR UNITED.—The water is in fork to the 60 fm. level, and we are preparing to drop our lift to the bottom of the perpendicular, where we intend to fix our plunger-lift. Our engine continues to work well, and the shaft is very secure in going down. The men in the adit are getting on very satisfactorily.—August 24.

SOUTH WHEAL TRELAWNEY.—The engine-shaft is sunk about 7 fms below the adit level; the ground in every part of it is a soft light blue killas strata, ground favourable enough for an engine-shaft. The engine fully answers our expectations in all her movements, and the water at present is less than one stroke per minute: the shaft will be continued to sink without any interruption—the machinery and pitwork having been fixed and set in motion—except to lengthen the lift as they progress downward.—August 21.

TINCROFT.—The lode in the 100 fm. level, east of new engine shaft, is 4 ft. wide, orey throughout, worth 15*l.* per fm.; west end of same level worth 10*l.* per fm. The lode in the 90 east is 4 ft. wide, producing some ore and kindly; the 90 west, on the north lode, is worth 12*l.* per fm.; the 90 east on the north lode is at present unproductive. The lode in the 80 east is 2 ft. wide, producing tinstuff, worth about 8*l.* per fm.; the lode in the 80 west is 20 in. wide, worth 10*l.* per fm. The lode in the 70 east is producing some tinstuff and kindly; the 70 and 50 west are suspended, being near the boundary. The lode in the 60 west is 20 in. wide, producing some ore and kindly. At Palmer's, we are driving the 80 fm. level from the south to the north lode. The lode in the 70 fm. level west is 2 feet wide, worth 14*l.* per fm. The lode in the winze sinking below the 60 (beyond the 70 end) is 2 ft. wide, worth 10*l.* per fm. The tribute department continues much the same, on the whole, as for some time past. The south mine, on Chappel's lode, continues to look well. Highburrow lode, from the different levels, winzes, and pitches, continues to yield fair quality tinstuff. We expect to set Wheal Providence engine to work, to fork below the adit in the course of this week.—August 16.

TRELEIGH CONSOLS.—In the 100 fm. level, east of Christoe's, the lode is 20 inches wide—very little mineral, but has a kindly appearance. In the winze below the 100 fm. level, the lode is 18 in. wide, producing some ore—not to value. In the 100 cross-cut, north of Garden's, we have driven about 3½ fms., and bored 6 ft., and have not cut any more lode: we shall suspend the cross-cut, and open east and west on the lode cut in said cross-cut, and hope next week to give a more favourable account of this level. In the 90, west of Garden's, we have stopped the rise, being very wet; the lode in the end is 14 in. wide—worth 12*l.* per fm. In the winze below the 80 west, the lode is 2 ft. wide—worth 8*l.* per fm. In the 80, east of Garden's, we have suspended driving on the branch, it being small, and shall drive on the main part of the lode, which is 15 in. wide—kindly, with stones of ore. In the 70, west of ditto, the lode is 10 in. wide—not much ore. In the 60, west of ditto, the lode is 3 ft. wide, producing some good stones of ore, and very kindly. In the adit, east on Wheal Parent lode, the lode is 20 in. wide, producing stones of ore, not to value. In the shaft below the adit, on ditto, the lode is 2 ft. wide—worth 5*l.* per fm., and very promising.—August 21.

UNITED HILLS.—In the 90 fathom level, the lode in the stopes, in the back of this level, is 2 ft. wide, and worth 18*l.* per fm.; in the bottom, the lode is 2½ ft. wide, and worth 28*l.* per fm.; there has been but little done in this level for the past week, in consequence of the water being in. At Wheal Sparrow, in the 40 fm. level, the lode is 1 ft. wide, and worth 2*l.* 10s. per fm. In the 30 fm. level, the lode is 18 in. wide, and worth 4*l.* per fm.; this end is greatly reduced in value since last reported. The water, at present, is in fork to the 90 fm. level, at Williams's.—August 24.

WEST WHEAL JEWEL.—In the rise in the back of the 70 fm. level, on Wheal Jewel lode, the lode is 1 ft. wide—worth 4*l.* per fm. In the 30 fm. level, west of Hodges's cross-course, on Tolcarne tin lode, the lode is 18 in. wide—worth 6*l.* per fm. In the 12 fm. level, west of Quarry shaft, on the same lode, the lode is 1 ft. wide—worth 9*l.* per fm. In the adit end, west of Quarry shaft, on the same lode, the lode is 1 ft. wide—worth 8*l.* per fm. In the stopes, in the bottom of the adit, east of Pryor's winze, on the same lode, the lode is 2½ ft. wide—worth 25*l.* per fm.—August 23.

WEST WHEAL MARIA.—The lode in the 38 fm. level, west of the eastern engine-shaft, is 3 ft. wide, producing good stones of ore, and promising further improvement; the western engine-shaft is down 10 fms. below the 54 fm. level, the lode in this shaft is about 3 ft. wide, composed principally of capel and spar, with spots of ore in places. In the 54 fm. level, east of this shaft, the lode is 18 in. wide, and unproductive; in the cross-cut south, in this level, the ground is rather hard for driving.—August 24.

WEST WHEAL TREASURY.—I am happy to inform you, that the expectation held out in our superintendent's report, under date the 3d July, has (in respect to the deepest part of the mine) been this day realised, by the intersection of a course of ore in the 50 fm. level; I, therefore, deem it right to make you acquainted with this improvement, by the first post, as it is the source to which we mainly look for proceeds. I hope it may prove as continuous as it was in the 40.—August 25.—[The foregoing report has been issued by the purser. We are pleased to see such early advice given of improvements, as it precludes advantage being taken of absent or distant holders.]

WHEAL ADAMS.—The western silver-lead lode, in the rise, in the 50 fm. level, is 2 ft. wide, and worth 6*l.* per fm.; the ground in the eastern rise is favourable for working; the lode here is split into branches, as we anticipated: we are about 2 fms. from the deposit of reddish-brown blende, of which we are now in want. The lode in the 40 fm. level winze is 4 ft. wide, and worth 12*l.* per fm.; the western lode, in the south end, has not been taken down. The same remarks are applicable to the lode in the 28 fm. level south; the lode in this level, on the eastern course, is 1 ft. wide, producing stones of lead; the lode in the northernmost end still wears a promising appearance. We have resumed working on the western lode, in the 18 fm. level, which is producing a fair quantity of orey work. The masonry of the crusher-house is completed at last, and we have commenced dressing jack; it is, however, but right to observe, that the heap on the surface is mixed with a large proportion of quartz and hornstone, being the refuse from several cargoes—so that it will not only require a longer time in dressing, but it will be found expensive; therefore we must depend on our own resources in raising to procure a fair quality, and to prepare it for market with the necessary dispatch. We sampled, on Saturday last, a parcel of lead ore, computed 30 tons—samples of which are sent to the different purchasers of lead ores.—August 24.

WHEAL ANDERTON.—We are still looking as well as ever, and are sinking down to the 70 fm. level, with 9 men, with all dispatch; surface water, I regret to say, is so scarce, that we cannot get on with returning our tin for market, and hence the necessity, as indeed was apparent some time since, after making our discovery, and returns of tinstuff, of the necessity of extra steam-power. I am happy to say, that we are fast progressing; the new engine for drawing and stamping is advancing, as is the engine-house and other surface work, so that I hope soon to obtain adequate power to meet the difficulties which at present we have to contend with, in returning our ore into cash—both the 60 fm. level ends, east and west, look well, as also the stopes.—August 23.

WHEAL ANNA MARIA.—We have laid open on three large lodes at the surface—the south lode is 5 ft. wide, with a fine gossan about 2 ft. deep on the back of it—then comes in mundic, black and yellow copper ore; we have now sunk about 2 fms. from the surface; we have, in the bottom of this shaft, very rich stones of grey and yellow copper ore—it is improving fast as we go down. We have, on Woon's lode, a large gossan, about 7 ft. wide; on this lode the gossan is about 4 ft. deep from the surface, then under the gossan, mundic, soft peach, and yellow copper ore, with fluor-spar—we are down on this lode about 9 ft. from the surface; we are now sinking on this lode; it is thought by all that have seen it, that it will make a good bunch of copper in 3 or 4 fms. in sinking; there is a beautiful killas on the flat wall, and a fine flookan on the other wall. Looking at the present appearance, it is thought that it will make a rich mine in a very short time.—*Dunsford, Aug.* 25.

WHEAL ANN.—In driving the cross-cut from the wood-shaft, we cut through a good branch of silver-lead ore; we have also cut through an ochre lode, about 6 ft. wide, from which we can raise 100 tons per month. We have also been driving the adit level west, and have in this end good stones of copper and lead ore; this end is looking very kindly for making a good bunch of copper ore. We have been costeaning for the great lead lode, which runs through this sett about half a mile to the north of the large barytes lode: here we have a fine gossan lode, about 8 ft. from the surface; and there are some very fine stones of silver-lead ore in the pit, and, I have no doubt, will make lead on sinking a little deeper. Our prospects are cheering.—*Bridford, Aug.* 25.

WHEAL BARBARA.—It is with pleasure that I communicate to you the improvement that has taken place in the mine, since my last report. Yesterday we cut the lode, and found a very considerable change in the ground; our former price given for excavating, before we cut the lode, was 10*l.* 10s. per fm.—our present price for driving is 8*l.* 10s. The lode presents a very favourable appearance, such as seldom, or ever, fails of being productive, when effectually prosecuted; it is composed of a beautiful spar, impregnated with spots of lead, copper, mundic, and jack, with a fine flookan by its side; and I feel confident, that as soon as we get under the ore ground, which we discovered in the adit, a great improvement will be effected. In consequence of our sinking our engine-shaft between the two bunches of lead in bottom of adit, we have to drive east and west on the course of the lode a few fathoms, before we get under the ore ground; and, from present indications, and the nature of the lode, it is very apparent, that in a short time we shall better our position, and, I trust, be found working on a very productive lode. Stronger proofs of this than our present appearances are seldom met with; and a little time and money, will, I think, realise the expectations of the shareholders, and fully satisfy every consistent mind.—August 21.

WHEAL CURTIS.—*August* 19.—We commenced working the engine on the 17th inst., and it affords me much gratification to state, that the perfection of our machinery, and the very superior style in which it is put together, is now evident, as, when put in motion, nothing could exceed the perfect harmony with which the engine, flat-rods, and all the other works connected therewith, moved on.——*August* 24.—The engine is working well; we are rapidly progressing in getting the mine in fork, and shall, on an early day, by actual results, fully bear out the representations made, and thus establish the value of the property.

WHEAL LOUISA.—Since writing you last, the ground in the engine-shaft is greatly improved; and I am much pleased to inform you, that we are progressing rapidly towards our main object, being down 6 fms. 3 ft. under the 20 fm. level. I hope to complete the sinking of the shaft to the 30 fm. level by the end of next month. We have gone through several promising branches leading into the lode, which are indications of the highest character.—Aug. 24.

FOREIGN MINES.

ALTEN MINES.—Estimated produce of the mines, for July, 1847:—

Mines.	No. of men.	Tons ore.	Per ct.	Tons copper.
Raipas	28	99	6	5·40
United Mines	14	50	5	2·50
Ryper's	12	15	6	0·90
Mancur's	4	4	5	0·20
Michell's	8	8	6	0·48
Old Mine	10	15	6	0·90
Wilson's	4	4	7	0·28
Powder House	2	2	5	0·10
Quænvig	2	2	3	0·06
Carl Johan's	2	2	4	0·08
Cole's	2	3	4	0·12
Total	88	195		11·02

Mining Report, from the 15th July to 3d August.

Raipas.—The result of our operations has hitherto been successful, and the prospects continue highly flattering. We fully expect the improvements which have latterly taken place at this mine will enable us to increase both the quality and quantity of the monthly returns. The stock of ore collected at the mine will, in a short time, be delivered to the smelting house, and I hope the assays will be more satisfactory than for some time past.

United Mines.—The produce of the stopes continues good and regular, and the prospects are equally promising. Almost all the halvans and picking stuff are now dressed, and returned to the smelting-house.

Ryper's.—The progress made in exploring the new lodes has been slow, but satisfactory, and at present hold out a promise of permanent returns on a limited scalee. The quality of the ore is, however, superior to that produced from other parts of the mine.

Mancur's.—The four men employed here make but little progress through the hard compact rock composing the lode. The ore continues equally good, and appears gradually increasing in quantity; the returns, however, continue comparatively low, on account of the unfavourable nature of the ground for excavating.

Michell's.—Since recommencing the smelting operations, a scarcity of hands has rendered it advisable to suspend the prosecution of the shallow level for the present. The tributers continue to make fair returns.

Old Mine.—The tributers have here also been tolerably successful, and continue to work with spirit; the interest taken in their work evidently increases, as they become more experienced, and conversant with this new system of working.

Wilson's.—The appearance of the several lodes is again more fluctuating, and the returns have, in consequence, also been diminished.

Powder House.—The lode has again improved, and the prospects are better than at the commencement of the present operations.

Quænvig.—A scarcity of hands also compels us to suspend operations here for a short time; the returns have been small, but we hope profitable.

Carl Johan's has yielded a small quantity of tolerable good ore, but the prospects on the whole are less favourable than before.

Cole's.—The returns from this mine have been principally through the halvans, but during this month we hope to recommence the tribute pitches. The number of men required at the smelting-house prevents us from employing as many hands on exploratory work as would be advisable; and I fear the approaching hay harvest will draw many of our people from their work for a short time, and in some measure lessen the produce of the present works: this circumstance is, however, unavoidable; and our only alternative will be to employ the remaining hands on the most productive places, in the hope of being able to make up the deficiency.

Ore Dressing.—On cutting into the halvan heap, at the old mine, the halvans were found to be scarcely worth the cost of removal. Another attempt will, however, be made in some other part, in the hope of making a fresh discovery. The usual delivery note will be forwarded with next post.

IMPERIAL BRAZILIAN MINES.—*Gongo Soco, June* 12.—*Gongo.*—Our gold troop, commanded by Capt. Luke, and escorted by the miner, Penprase, left for Rio on the 5th inst., with sufficient animals to bring the new surgeon and miners. The remittance amounts to but 32 lbs. 11 ozs. 1 dwt, 3 grs. of gold dust, exclusive of the duty of 10 per cent., paid here, and is contained in one box.

Bananal.—Within the incredibly short space of three weeks, our water wheel at Catta Preta has been taken to pieces, removed to Bananal, with all its pumping apparatus, and the whole reconstructed and put into perfect working order. A few portions, also, of the old apparatus, which we could not reach until the mine had been somewhat drained, are now in course of repair; and on Monday next (the 14th inst.), if not indeed this evening, we shall have an effective pumping force, equal to three 16-inch and one 14-inch pumps, at work, and which, I have no doubt whatever, will fully master the stream we have to encounter. I can scarcely hope that my next respects will advise you of the mine being thoroughly drained; but, unless some unforseen obstacle should present itself, we have lively hopes of reaching the gold vein, left by the former owners, by the end of this month. Capts. Blamey and Pengilley, with every member of our establishment at Bananal, merit my warmest approbation.

Gongo.—Our 14 fm. level, east from Duval's south cross-cut, has afforded some good samples on the Cumba formation; and, for convenience of working it, a new shaft has been sunk from the surface, and which was completed to the required depth in the short period of five days only. I am sorry to say, every other part of the Gongo Mine remains unaltered.—*Gold Workings,* from the 3d to the 12th June (9 days), 2 lbs. 11 ozs. 10 dwts.

NATIONAL BRAZILIAN MINES.—*Cuiaba, May* 27.—Capt. Hitchin has but this moment arrived from Cocaes, and, therefore, will not have time to furnish a report for this post—a circumstance which I much regret, inasmuch as he would have confirmed, by more minute information, the present cheering state, and promising future productiveness, of our *new* mines. We have a strong reason for our sanguine expectations of the productive nature of the Serrote and Quebra Cunha stone, from the circumstance of the surface rocks and refuse stuff alone giving us the return which we have obtained; for, as yet, we have not touched the main lode, and have only taken away the above-stated rocks and stuff. These, however, will soon be exhausted, and, upon the arrival of an addition to our present small force, we shall commence upon, and soon ascertain the quality of, the the main lode. Should our well-grounded expectations, and earnest hope, be realised, a larger produce than ever this mine has hitherto afforded, will be the undoubted result.

Produce, for nine days, 5 mks. 0 oz. 7 olts. 8 grs.

ST. JOHN DEL REY MINES.—*Morro Velho, June* 8.—*Produce for May,* 13,403½ oits. = 138 lbs 9 ozs. 2 dwts. 15 grs. Troy—reported by Mr. Smyth to be from 2918 4-10th tons of ore, yielding 4·59 oits. per ton. There has been received also from Cata Branca, produce of May, 151·48, and from Feraos, 45·6—making a total of 13,600½ oits. = 130 lbs. 7 ozs. 17 dwts. 12 grs. Troy.—There is no doubt that this gold has been obtained; but how it happens that a month, in which the Lyon 30-head stamps have been stopped for repairs during eight days, could yield a produce which would have been considered great, even if the whole 71-heads had been in full play, is a point which puzzles me—which puzzles Capt. Treloar—and whereof Mr. Smyth himself can give no satisfactory solution. Mr. Smyth says he obtained this produce from 2918 4-10th tons of ore, which was richer than usual, and yielded 4·59 oits. per ton. Captain Treloar shows, that he furnished 3293 tons of ore, which he says has been all stamped, which was decidedly not richer than usual, and which, divided into the total amount of gold obtained, would show the more probable value of 4·7-100ths oits. per ton. The different modes of computing the number of tons of ore sent up from the mine, and adopted respectively by Captain Treloar and Mr. Smyth, render the subject more perplexing than it need be, and I must endeavour to get them both to adopt one standard in future. The improvement in the Lyon stamps ought to enable us to stamp in future 3400 to 3500 tons of ore per month—giving, at 4 oits. per ton, 13,600 to 14,000 oits. of gold for our month's produce. The estimate furnished by Mr. Herring, in his letter of the 8th May, was, I fear, much too sanguine. Captain Treloar says, we cannot expect, with our present stamping power, to obtain 16,000 oits. per month.

Cost for May.—Rs. 28,776 195 (at 29d.)—3477*l.* 2s.

Mine Report.—Captain Treloar's monthly report will give you so clear a view of his operations in the different sections of the mines, that it would be needless for me to make any observations thereon, were it not that I think it right to call your particular attention to a fact, which I am convinced will give you pleasure—that he is at length engaged in the construction of an inclined plane, in the new Cachoeira sump-shaft, on which he proposes to try Goyen's carriage and kibble, for the hauling of ores. He thinks, that in three months the trial may be made. Of the success of this trial, Captain Treloar does not appear very sanguine—pointing out the numerous instances of experiments succeeding admirably on a small scale, and yet proving complete failures when tried on a large scale. But if the experiment should succeed in the Cachoeira, Captain Treloar says, he will be able to construct similar inclined planes through the other mines, without in any material degree interfering with the general operations, or with the quantity of stone to be supplied to the stamps during the construction of the inclined planes.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

In our last week's Number, under the above head, may be observed, "Holmbush is looking very gloomy," &c.; and in another column, that an improvement had taken place. Lest this apparent contradiction may be considered as arising from some interested motive, we would observe, by way of explanation, that all the information obtained under the above head are extracts from letters of correspondents, on whom we place great reliance, from their being known to us as experienced and practical men residing in the respective localities, as well as our confidence in their veracity; and, should there be any discrepancy in those notices, and other official reports, it must be considered that alterations in the mines have subsequently taken place. Our intention in publishing these extracts being to afford all information we possess (*pro or con.*), for the benefit of absent shareholders; and, in the event of any incorrectness, we should feel thankful at all times to be advised, that we may ascertain if any attempt to impose upon, or mislead, us has been practised.

CALLINGTON MINES.—A splendid discovery has been made here; they have gone through the cross-course in the 70, and found the lode worth 40*l.* per fm. In the 40 they have a very promising lode; and the Kelly Bray lode has been seen 10 fms. deeper, with every appearance of the lode making very rich in going down.

DYFNGWM MINES.—In our last publication we adverted to these mines, which are now in the hands of enterprising adventurers, who purchased them from the proprietor of the land. The former tenants had worked these mines unfairly, by robbing the lodes wherever they could find lead—thus leaving the present occupiers to open lodes in a working manner; here, for nine months, they had nothing but expenditure in taking away the matrix from those lodes from which the lead had been robbed. Since then, they have been working the levels, &c., in a workman-like manner, and receiving their fair yield of produce, which has been rather above one ton to the fathom. This prudential course has led to the good results, and the discovery, we noticed in our last Journal. With an average expenditure of from 50*l.* to 60*l.*, from 15 to 20 tons per month of ore has been got, which has sold at Holywell at 11*l.* odd a ton. As the lowest level is only 22 fms., which is not below the bed of the river, and it is found that as the miners sink the lodes increase in quantity, to 1½ and 2 tons to the fathom, so the quality of the ore will become enhanced, and Dyfngwm become celebrated for its profitable returns to the shareholders. From a friend, who lately visited Montgomeryshire, we learn that there are as many hands at work on the Dyfngwm lodes as can be employed, until the shaft is sunk 10 fms. deeper, and the levels commenced under those in the 22 fm. level; this, then, will be the 32 fm. level, and it will give employment to 20 additional hands; sunk 10 fms. more, it will become the 42 fm. level, and give employment to 20 additional hands. Our friend affirms, that of the returns in the two last-mentioned levels, no doubt can exist, besides opening the great Esgair-galid lode from 40 to 60 ft. wide, where the lead even on the surface promises a most prolific yield; and it is satisfactory to learn, also, that in all the operations at Dyfngwm, for the last 18 months, there is now nothing to undo. By working the lodes unfairly, from 40 to 50 tons monthly might be raised; but, acting on fair principles, all deception has been avoided, and the property is now as much a virgin mine as any in Britain. Even on the present plan of proceeding, eventually from 150 to 200 tons of ore may be raised monthly; but the company appear to consult the most advantageous principle in creating capital where no risk is to be incurred, and soliciting no association with mere speculators, who, upon representations unfounded and base, induce the confiding and simple to expect fortunes without labour, and interest without advances. Upon the whole, we conscientiously believe, from all we hear, that no concern was ever offered in the market likely to produce upon the same capital such profits, and without the possibility of risk. All outlay in machinery, &c., &c., has been made; and the supply of water is capable of working 10 times the power required. Here, again, a great annual saving is effected; but this property is not in the market—its shares are being disposed of privately to capitalists seeking profitable investments.

EAST CROWNDALE.—A further and considerable improvement has taken place here, both in the copper and tin lodes, which has caused an advance in the price of the shares here.

HARROWBARROW OLD MINE.—The mine was never in so good a state for the adventurers as at the present moment. They will be at full work again in about six weeks or two months at the furthest, by which time the whole of the new machinery will be completed ready for dressing the large quantity of tin now at grass, which is estimated as being worth from 400*l.* to 500*l.* The captain (J. Paull), a man of considerable experience, has declared, that there will be no difficulty in raising 10 tons of tin per month. The sett is more extensive than any in the county; and the quality of the tin, judging from what has already been sold, and the price (45*l.*) it fetched, of the highest character. On the whole, therefore, I do consider myself fully justified in strongly recommending this speculation as being one of the most promising description. The adventurers have certainly had their patience a good deal tried; but that has been, in a great degree, owing to the ill-luck they have had in the accidents to the machinery, &c., &c. I do believe that, on once getting into full play again a very short period will ensure them a satisfactory return for waiting so long

HOLMBUSH has considerably improved since my last; in the cross-course, or lead lode, they have some very good ends, which are still improving.

NORTH ROSKEAR.—I should have informed you of the improvement here; but, being unable to speak of it definitely, I delayed doing so until more had been seen—nor can I now say anything more, than their having a good lode in the 60, driving from Wheal Seton boundary, west into this sett; but, not having yet cut the south wall, I cannot state what it is worth. The sampling last week, as you are aware, was 941 tons of good quality.

TRELAWNEY.—They have cut the lode in the 52 level, worth 20*l.* per fm.

WEST SETON.—There is an improvement here immediately on the verge of the eastern boundary.

WHEAL CURTIS.—The following is an extract from the letter of a shareholder, at Ashford, to the secretary, dated 23d of August:—"Yesterday, I received a letter from a friend at Camborne, informing me of Wheal Curtis engine having gone to work, and the proprietary in that neighbourhood being quite elate with soon realising a dividend-paying mine; and not only that, but will be the means of giving great employ to the miner, and advance the interests of the needy in that neighbourhood. I am very happy to say, that I am much encouraged at the prospects, and particularly when I can place confidence in a particular friend of mine, urgiug me to keep the little interest I have, because he has but little doubt that Wheal Curtis will be one of the first mines of the county. In order that this may be confirmed, I beg to inclose you a short report I had sent me by my friend, an agent of from 20 to 30 years' standing. Perhaps, many of the London shareholders are not much acquainted with mining, and feel timid in speculation; but, as I am a Cornishman, and have friends at Camborne, who, I feel persuaded, would not mislead me, I have obtained the inclosed report, not only for my own satisfaction, but more particularly for those who have not the same facility as myself."—[The report referred to, dated Aug. 19, appears among our Mining Correspondence.]

SOUTH AFRICAN MINING COMPANY.—Letters from the Cape of Good Hope, of the 11th June, state that the parties who had been engaged to work the lodes of mineral ore which have been discovered in Namaqualand, were on board ship, awaiting a favourable wind to carry them to their destination.

BRIERLEY HILL LEVEL FURNACES.—We have pleasure in being enabled to state that one out of these three furnaces has at length been started to work, putting nearly 100 pairs of hands into employment, and it is expected that in a very short time another will be blown in.

UNITED MEXICAN MINING ASSOCIATION.

TO THE EDITOR OF THE MINING JOURNAL.

Sir,—I do not know what "Original Subscriber" means by misrepresentations, but I presume he will not attempt to deny that the United Mexican Mining Association has been in existence about 23 years, nor can he safely assert that it has paid, during the whole of that period, more than two miserable dividends—one of 7s. 6d., and the other of 5s. per share; as to having discharged what is termed auxiliary capital, simply means repaid borrowed money; and it is a new idea altogether for a concern to take credit for paying its debts. To his statement, that I have no more right to meddle with the unclaimed dividend than I have with the money in his pocket, I beg to demur; the money in his pocket may belong to himself—the unclaimed dividend (which is generally understood may never be claimed) belongs, until claimed, to the associated body; and they have as much right to use it *pro tem.*, holding themselves at all times liable to pay it when (if ever) demanded, as to lend it to others to use; but, perhaps, the undertaking is in such a condition, that he thinks the money is safer in other hands. Will he have the goodness to state the description of securities taken for these large sums of 15,000*l.* or 20,000*l.*, and the rate of interest paid for them. In referring to the piece of plate, if I have given pain, no one can regret it more than myself, and I hereby make the *amende honorable*; I did it in complete ignorance, and have not at this moment any remembrance of the proprietors having passed such a vote. That the papers of the association are voluminous and valuable, is agreed; but their volume and value has not increased so much during the last 12 months as to require their removal from the quiet office in Winchester-street to an expensive house in Finsbury-circus, on which 300*l.* has been expended in fitting up. As respects his gratuitous advice, that I should sell my shares, I will, with his permission, follow my own, unless he is able and feels disposed to repay me the thousands I lost originally in the undertaking. The saving of 200*l.* per annum is something like the two shells of an oyster: the former representative of the company in Mexico had a salary of 1700*l.* sterling per annum; the executive thought that 1000*l.* was sufficient for the present manager—consequently, 700*l.* per annum would have reverted to the company; but, no!—an entirely new office is created in London, with a salary of 500*l.* per annum attached to it; a handsome house taken, and other expenses incurred, which will exceed the difference—and all this done in hard times, when the dividend has been suspended for 18 months. "Original Subscriber," perhaps, may have reason to be well satisfied with his position, but I will not be deterred from stating facts, although at the risk of wounding his sensitiveness, by alarming shareholders at a distance.—AN UNFORTUNATE SHAREHOLDER: *London, August* 23.

[We insert the above communication, as giving "An Unfortunate Shareholder" the full opportunity of expressing his sentiments in reply to "Original Subscriber," reminding him, however, that he has not stated the facts of the case precisely as they are. On reference to the *Mining Journal* of Aug. 1, 1846, he will find, in our report of the meeting, held on July 29, that the new office created involved a salary of only 400*l.* per annum, and that a decided saving was still effected of 200*l.* per annum. We have so often expressed our opinion of the policy, or rather *impolicy*, of forcing dividends of small amounts, and leaving the directors without funds to meet an emergency, that there is no occasion to repeat our arguments. We are still of opinion that, under all the circumstances, more particularly the present unsettled state of Mexico, the directors were perfectly justified in the course adopted, and which, we have no doubt, will be evident in the results—at the same time, we could wish, for the sake of the shareholders, that a more fortunate state of things had existed, under which a dividend might have been paid.]

GREEN VALLEY MINE.

"A Sufferer" is hereby informed, that the undersigned never had "a large sum in hand" belonging to the above mine; but that the funds applicable for another dividend (one has been paid) were withdrawn from the bank, and placed at interest, until the action against Mr. Skewes, for the amount of his calls, should be settled, and a final dividend declared: however, at a meeting of the committee, on the 18th inst., it was agreed to call in the money at interest, and divide it without reference to Mr. Skewes's debt.

Liskeard, 8 mo. 23. EDWARD A. CROUCH.

TIN BOUNDS.

TO THE EDITOR OF THE WEST BRITON.

Sir,—The question put forward by your correspondent "T" (see *Mining Journal* of last Saturday), "What are tin bounds?" is a broad one, and the interpretation given by him is clear and manifest, and that whereon the enemies of tin bounds base their objections. Now, Sir, I repeat—the bounder makes his property legal by means of annual renewal, at least it was so considered, previous to recent decisions; but few tin bounds are legal, if a continuous working in them from the time they were cut is required; however, even admitting that they *must* be worked continually, and uninterruptedly, I can cite an instance where two tin bounds have been so worked, and dues paid regularly, previous to the violent and illegal breaking in of Capt. Crease (late lessee of the duchy), and his agents. These gentlemen refused to acknowledge the tin bounds, a rule was obtained against them at the Vice-Warden's Court, and instead of meeting the bounder, they kept procrastinating until Capt. Crease turned over his lease to the duchy: thus conveniently and coolly slipping out of the consequences which he knew were inevitable—to refund the moneys belonging to the bounder honestly, fairly, and legally, and according to "T's" opinion.

Again, referring to Rogers *v.* Brenton's case, the first trial was given in the plaintiff's or bounder's favour—the judge then presiding, and the jury then acting, seeing clearly that tin bounds were legal, and that the bounders (Canon Rogers, and Lady Basset) had fully and satisfactorily substantiated their claim. Lord Denman, therefore, did but deliver his judgment from reading over the evidences then delivered, and not from hearing the case personally. We are all aware that it is a singular property, and perhaps the custom of annual renewal is singular; but are we not aware also that many other singular customs are handed down to us in order to legalise other properties. I will give an instance—on Candlemas-day, a Reeve (previously appointed) from the Manor of Lambourn, has to proceed to Godolphin, the seat of the ancient Earls of Godolphin, before sunrise, and there repeat three times, at three doors of the house, some words—absurd enough to our ears—which words, however, are sufficient to legalise this Manor of Lambourn to the St. Aubyn family. Another like ceremony in the county of Kent, excepting that the Reeve here goes on the top of a hill in the property, and proclaims and legalises an immense and rich manor to an ancient family there. All this may seem to "T" and others remnants of by-gone days, and should be abolished; this, however, should not interfere with justice or our laws; if this ceremony or custom is singular, still justice is justice, whether made in the days of Richard I, or in the days of her Majesty Queen Victoria—and still, therefore, we should have our property.

Regarding the charge that bounders lock up property from being worked, they do not, nor ever have they, that I am aware, done so. At all times, at least when applied to in this neighbourhood, and indeed throughout the county, the bounder is willing and ready to advance the spirit of speculation, in allowing all ground being tried effectually; consequently, instead of a tendency to evil, it has a tendency to do good. The bounder, too, is the original setter; and after the bounder has received his dues, the lords come in for theirs—thus demonstrating that the bounder is the first and foremost, instead of last and least.

It would be a fortunate circumstance for Cornwall if this question were decided definitely and undisputedly, so that all litigation on the question should cease. A commission, such as the late duchy commission, would, I think, meet the case, and settle amicably this deep-rooted question. A TIN BOUNDER.

St. Agnes, August 17.

GURTAVILLIG MINE.—The following report of the operations at this mine, the property of the Southern and Western Mining Company of Ireland, is extracted from a lengthened account of the fishery establishment, &c., at Coosheen, which has been furnished by a correspondent to the *Cork Constitution*:—"Two adit levels have been driven horizontally into the face of the cliff at an interval of about 50 ft., and are being carried east and west along the course of the lodes. These levels drain the mine, while they also serve as passages for the conveyance of the ore to the dressing floors—thus obviating the costly erection of steam machinery, which generally requires in Cornwall a preliminary outlay of at least 5000*l.*—and this before the character or extent of the mine has been at all ascertained. Hitherto the underground operations have been confined to exploring, and ascertaining the extent of the deposits—connecting the two levels by winzes or perpendicular passages—sinking shafts, and laying out the mine in such a manner as to render it more readily available for stoping the grey ground; but this having been already carried on to an extent sufficient to lay open a vast field of the most valuable formations, the lodes will now be broken down, and the ore dressed with a view to an immediate shipment for Swansea. The character of the Gurtavallig ore is similar to that found in the opposite mines of Berehaven; and, except in its greater richness and extent, corresponds with that found in the best Cornish mines. It will probably bring 9*l.* or 10*l.* a ton, whereas the average of the Cornish copper mines is not more than 6*l.* per ton. The lodes are unusually large, one of them measuring 4 fms., or 24 ft. across. A considerable quantity of ore has already been collected; and now that the operation of stoping has been commenced, a cargo will probably be ready for shipment before the end of the year. To have arrived at such a position with a Cornish mine, at least 10,000*l.* must have been expended, and five or six years devoted to the work; whereas here the whole outlay has not yet reached 2000*l.*, and the operations were only commenced in the winter of 1845. A row of small dwelling-houses for the accommodation of the workmen is in course of construction, at a convenient distance from the works; and so favourable has the contract been to the company—good slate and building stone being found on the spot—that they will yield a profit rent of 15 per cent. Too much praise cannot be given to Capt. Thomas for the ability with which he has conducted the operations at Gurtavallig—the boldness, decision, and judgment of the initiatory steps—the patience and perseverance with which they have been followed up—the practical skill displayed in all the arrangements, and the careful economy which has been observed throughout, must ensure him the confidence of the company; and there can be no doubt that while the whole peninsula of Mintervorra will be benefitted by the employment afforded at these mines, large returns will eventually be made to the shareholders.—N. L. B.: *Cork, August* 18."

COMBMARTIN AND NORTH DEVON LEAD AND SILVER MINES.—The annual meeting of shareholders was held at the mine, on the 18th inst., when the accounts were examined and passed—showing the 12 months' cost to have been 3838*l.* 2s. 6d.; and by calls, balance in hand at last account, and money received for ores sold, there remained a balance in favour of the company of 411*l.* 3s. 1d. We shall give the agent's report next week.

WANLOCKHEAD MINES—VISIT OF THE DUKE OF BUCCLEUCH.—On Thursday last, the Duke of Buccleuch and two of his sons (the Earl of Dalkeith and Lord Walter), accompanied by Mr. Maxwelt (Carronhill), and Mr. Douglas (architect), the duke's private secretary, and the tutor of the boys, visited the possessions of his grace at Wanlockhead. They were met by the miners, and escorted to the village, the band all the time "discouraging most eloquent music." The party, having been joined by Mr. Stewart, overseer, visited the Smelt Mills, and seemed to be deeply interested in the process of extracting the silver from the lead. A plate of silver, weighing upwards of 100 lbs., was extracted while they were present. After visiting the school, a very commodious building, lately erected, they took their departure, greeted with the cheers of the entire population. His grace expressed himself as much pleased with the welcome he had received at Wanlockhead.

AWFUL EXPLOSION OF A STEAM-BOAT BOILER ON THE THAMES.—About half-past 9 o'clock yesterday morning, the neighbourhood of the Adelphi was thrown into a state of great excitement by the sudden bursting of the boiler of the *Cricket*, one of the three "halfpenny" boats, which ply between London-bridge and the Fox-under-the-Hill stairs. The consequences were most serious—four persons having lost their lives, 10 or 12 are in the Charing Cross Hospital much mutilated, and numerons others received injuries more or less severe, but were enabled to proceed homeward. The noise was heard, and the concussion of the air felt at a great distance; and the vessel herself was rendered a complete wreck, and immediately sunk. It is to be hoped a most searching inquiry will be made by the authorities of the conservancy of the Thames, as rumours are afloat respecting the unworthiness of the boats, as also of the absence of the engineer, stoker, and captain, at the time of the explosion. Indeed, it appears almost impossible that boats running at such low fares, can afford sufficient pay to properly-trained and efficient officers. One stoker, about three months since, was discharged for pointing out the improper manner in which the engines were worked: he stated, at Bow-street, that he had known 400 persons on board; and, to accelerate the speed, the engineer had tied down the safety-valves, and worked the steam up to 90 lbs. on the inch. The three boats were built by Ditchburn and Mare, and the engines by Joyce; they are on the combined-cylinder principle, patented by Mr. Octavius Smith, of Greenwich, for using the steam on the expansive principle in oscillating cylinders. Without at all prejudging the case, we cannot help extracting the following almost prophetic observation, which will be found in *Portwine's History of the Steam-engine*, and was written when the fare was one penny: he says—"Three vessels on the Thames, called the *Ant*, *Bee*, and *Cricket*—boats which profess to work with low-pressure condensing engines. The public are not aware that they are working at 36 lbs. on the square inch. The engines are by Joyce, two of 15-horse power; the fuel consumed is only about 2 cwts. 1 qr. per hour. These are the penny boats, plying from Hungerford to London-bridge; and working at high pressure, they may, when out of order, blow up their decks, and the myriads of passengers they are burthened with." Crowds flocked to the scene of destruction all day, and it was with the greatest difficulty that a strong body of police could keep off the throng, and it was feared the immense pressure on the Adelphi-terrace would have forced out the rails, when awful destruction must have ensued. It is feared the total loss of life is not yet ascertained.

CORNWALL RAILWAY.—The half-yearly meeting of shareholders was held on Thursday last, the 26th inst., at the Billiard Rooms, Truro.—J. T. TREFFRY, Esq., in the chair.—After the usual preliminaries, the SECRETARY read the directors' report, which stated that the Deviation Bill had received the Royal Assent, by which the line would pass close to Devonport, and participate in the traffic between that place and Plymouth. A contract had been entered into for the construction of a portion of the line east of Truro; and arrangements were being made for proceeding with other parts towards St. Austell. The directors had not pressed for calls, in consequence of the difficult state of the money market, which they trusted would be considered sound discretion.—From the balance-sheet, it appeared, that the total receipts had been 103,373*l.*; and expenditure, 29,791*l.*—leaving balances at banker's, and in petty cash, of 73,581*l.*—In the course of the conversation which ensued, Mr. BRUNEL urged the necessity of commencing the works immediately on several parts of the line; and stated that everything in his department was ready to begin at once.—The report and accounts were adopted, and the meeting separated.—The first sod was raised on Monday last by Mr. Findlater, the contractor, in a field near Buck's Head, in the parish of St. Clement.

SPEED OF ORDINARY TRAINS ON THE GREAT WESTERN RAILWAY.—It has been stated, on what may be deemed official authority, that in the acceleration (which is to take place on the 1st of next month) in the speed of the ordinary through trains upon the Great Western Railway, the heavy 12 o'clock down train will perform the 118 miles to Bristol in 3 hours and 40 min. We are in possession of the printed time-bill, and find that this train will not be accelerated at all at Bristol, and that it will be expedited only 10 minutes in the 193¾ miles to Exeter. The 7·45 morning down train is to be expedited 35 minutes to Exeter; but the speed will not average more than 26 miles per hour. The 2 o'clock train is to save only 5 minutes to Exeter and the 4·45 15 minutes to the same place—reductions in time almost too insignificant to require notice. The third-class trains are to run at 16 miles per hour. We had hoped to see a much greater acceleration in the stopping trains upon the Great Western Railway.

BERLIN CASTINGS.—Ehrenberg states that the peculiar fineness of these castings is owing to the iron and sand employed being of a peculiar quality, and only to be met with in the neighbourhood of Berlin. The former is made from bog-ore, and the latter is a sort of tripoli, containing a considerable admixture of iron.

IMPORTANT TO IRONFOUNDERS.—On Friday last, Messrs. Smith and Willey, ironfounders, of Liverpool, appeared at the County Court, to defend three actions brought against them by men lately in their employ, for balance of wages alleged to be due. It appears this firm refused to pay the demand, owing to the men having wilfully spoiled the work entrusted to them; and that, in consequence of the conduct of the moulders, belonging to the moulders' club, Messrs. Smith and Willey had been forced to put labourers and boys to perform work previously done by moulders, and that strong ill-feeling had been displayed by the club men in consequence. One of their plans was to send men to take employment as moulders, and after these had worked a day or two, the work entrusted to them they wilfully spoiled. A young boy was then called, who stated that he had only been working three months as a moulder, and that he had made several articles from the same pattern as the articles spoiled, and that all his work was good. Similar evidence was also given by a man who had been labouring in Smith and Willey's foundry for 2½ years; he stated that he had never previously worked in a foundry—in fact, was an old soldier; since the plaintiffs had been discharged, he had made several articles similar to those mentioned—all his work had turned out correct, and the job was particularly easy. On behalf of the plaintiffs, it was attempted to be shown that the work was not spoiled by design, but from accident; and several witnesses were called, who stated that they, as moulders, had frequently lost work, and that their wages had never been stopped in consequence. In reply to a question, they admitted that their employers were justified in refusing to pay, provided they were clearly satisfied the work had been lost designedly, stating that this was a case they had never known, and did not believe a moulder would act so wrongfully.—His Honour, who paid great attention to the case, was of opinion that the work had been wilfully damaged, and refused all the claims, observing that, although it was possible a single article might have been accidentally lost, the fact of three men losing their work at the same time was sufficient to convince him that the defendants had taken a correct view of the case, and were justified in resisting the demand.—*Birmingham Journal.*

A TUNNEL UNDER THE ST. LAWRENCE.—It is proposed to tunnel the St. Lawrence, opposite the Island of Montreal, in order to connect the railroad running to the Atlantic. The proposed tunnel under the St. Lawrence, at its narrowest part, near St. Helen's Island, will be about one-third of a mile from shore to shore, and about one-third the length of the principal tunnels in England. The depth of the water in the river is 43 ft.

RATING OF PUBLIC COMPANIES—DECISION.—At the Westminster Petty Sessions, on Tuesday last, a case of some importance, which had been previously partly heard, was decided—viz.: an appeal by the Chartered Gas Company against a rating of 4000*l.* a year on their works in St. Margaret's parish.—Mr. ROGERS, the vestry clerk, said, that in consequence of the company having made a return of 28,000*l.* a year profits, the parish had only considered it fair to increase the assessment from 3040*l.* to 4000*l.*, on the principle, that any person would pay that amount for the use of the extensive works and interests enjoyed by the company.—Mr. BUBLE, the secretary, contended that no reason had been shown to alter the arbitration of 1830, and that to make an assessment on an income-tax return was not just.—Alderman Johnson doubted if the profits could be rated.—Mr. ROGERS observed, that it was not the profits that were proposed to be rated; if so, it would be on 28,000*l.*, instead of 4000*l.*; but the parish contended that any one would give 4000*l.* a year for permission to carry on the works; and it was for the company, by the production of their books, to show that amount could not be obtained. The parish could not do that.—The court observed that the question was one of great importance to the company as well as the parish, and they wished some better evidence had been brought forward. The room was cleared for about a quarter of an hour; and upon parties being called in, Mr. EVANS announced that he, and his brother magistrates, were of opinion that the rate should be affirmed. The company could have brought forward evidence that it was too much; they had not done so, but they could appeal.—Mr. BUBLE thanked the magistrates, and said the company would consider what course they should pursue.

NUMBER OF MINES IN THE SEVERAL MINING COUNTIES.

It would, doubtless, be a work of considerable difficulty to obtain an exact return of all the mines in the kingdom; but the following list, however, in round numbers, may be taken as a near approximation to correctness:—

CORNWALL & DEVON	Tin, copper, lead, iron, zinc, and antimony	350
DERBYSHIRE & STAFFORD	Coal, salt, lead, iron, copper, zinc	150
WORCESTER & LEICESTER	Coal, salt, lead, iron, &c.	100
WARWICK, GLOUCESTER & SOMERSET	Coal, lead, iron, manganese, &c.	100
NOTTINGHAM, LINCOLNSHIRE, and SHROPSHIRE	Zinc, coal, iron, lead, and gypsum	60
CHESTER & STAFFORDSHIRE	Coal, lead, iron, and salt	120
LANCASHIRE & YORKSHIRE	Coal, lead, silver, iron, &c.	100
WESTMORELAND & CUMBERLAND	Lead, copper, silver, antimony, zinc, & iron	100
DURHAM & NORTHUMBERLAND	Coal, iron, lead, &c.	100
WALES	Coal, lead, zinc, and copper	200
SCOTLAND	„ „ „ „ „	150
IRELAND	„ „ „ „ „	250
Total		1710

LONDON AND PROVINCIAL JOINT-STOCK LIFE INSURANCE COMPANY.

It has long been a well established fact, that the principles of life assurance, when properly and prudently carried out, have, under all circumstances, produced large dividends to proprietaries, and secured an ample fund on which the assured, or their representatives, could fall back in time of necessity and need. Notwithstanding the vast increase in the number of these institutions during the past 20 years, as the blessings of the principles are continually being better appreciated by an increasing community, so must the business which they transact extend. We have before us a prospectus of a new company, under the above title; formed, as is alleged, for the purpose of effecting assurances of every description of risk contingent upon life, at the lowest rate of premium, justified by the past experience of established life assurance offices and the improvement in the average duration of life. The assurance, on a novel plan, and at a very low premium, of the repayments or advances obtained on mortgage through building societies, or from other parties, thereby relieving the property from incumbrance in case of the death of the borrower, during the term of repayments, coupling the blessings of a life assurance to his family, with the laudable gratification of thus acquiring property for his own or their enjoyment. The effecting of assurances fixed in amount, or progressively increasing, by the investments from time to time of a sum or sums of money with this company, the whole, or any part, of such investments being withdrawable on due notice; the policy to drop on withdrawal of investments, and its then value allowed. Or, should the assured at any time require the use of his investment, without giving up the advantage of the assurance, *the whole of the amount would be advanced to him on security of the policy—interest at 5 per cent. per annum being paid for the same.* Thus, a person investing, from the age of twenty, 10*l.* a year with this company, will, in 10 years, have acquired an assurance on his life of 235*l.* 18s. Should he then require the use of the money so invested, and wish also to retain the benefit of the assurance, the full amount, 100*l.*, paid by him in 10 years, would be advanced to him on the security of his policy. This advantage is another peculiar feature in the business of this office.

There are tables, illustrating these several advantages, attached to the prospectus; a list of good names appear as trustees and directors; and we think there can be little doubt of such an institution, carried out with spirit, obtaining successful results. The capital is 500,000*l.*, in 20,000 shares of 5*l.* each.

NEW PATENTS.

E. W. Eaton, New Windsor, Berks, B.M., for certain improved machinery for preventing accidents by railway.

O. Reynold, Dedham, Essex, clerk, for improvements in making hop-poles, hurdles, fencing-ropes, basket or wicker-work, and other similar articles.

W. Bacon, Bury, Lancashire, engineer, and T. Dixon, of the same place, engineer, for certain improvements in steam-engines.

W. Eaton, Camberwell, Surrey, engineer, for certain improvements in raising water and other liquids from one level to another.

O. Brothers, Blackburn, Lancashire, engineer, for certain improvements in the method of manufacturing retorts, and in the machinery or apparatus connected therewith.

F. A. Renard, Rue du Rocher, Paris, for improvements in preserving and colouring wood.

J. Webster, Sneinton, Nottingham, engineer, for an atmospheric buffer to be applied to carriages and other vehicles travelling on railways.

A. Bowra, Rathbone-place, Middlesex, dyer, for improvements in colouring matters.

A. S. Livingstone, Bridge place, Lewisham, Kent, civil engineer, for certain improvements in the construction of locomotive engines intended to be used on railways.

T. D. Pruday, Freemasons' Tavern, Great Queen-street, cook, for certain improvements in apparatus for reducing vegetable and other substances to small particles.

A. Farries, Preston, Lancashire, gentleman, for improvements in propelling carriages on common roads.—*Mechanics' Magazine.*

SOUTH-EASTERN RAILWAY.—The South-Eastern mileage is not accurately given in the papers. It should be thus:—London to Dover, 88 miles; Tonbridge-Wells branch, 5 miles; Paddock Wood to Maidstone, 10 miles; Ashford to Ramsgate, 30 miles; Ramsgate to Margate, 4 miles; Whitstable branch, 6 miles; Minster to Deal, 9 miles—opened 1st July; Greenwich branch, 8¾ miles—total, 155½ miles: besides Gravesend and Rochester branch, closed till the 23d August, and Folkestone Harbour receipts.—*Railway Record.*

RAILWAY TRAFFIC RETURNS.

Name of Railway.	Lgth. Rway.	Present actual cost.	Price per share	Last Div.	*Traffic Returns.* 1847	1846
Arbroath and Forfar	15	£179,939	26½	3 *p.c.*	£ 260	£ 247
Chester and Birkenhead	15	658,293	39¾	2½	917	715
Dublin and Drogheda	35	689,248	54	2½	1002	975
Dublin and Kingstown	7¼	473,382	—	9	1180	1182
Dundee and Arbroath	16½	156,323	39	5	—	339
Dundee, Perth, and Aberdeen	47	285,745	35	6	1127	—
East Lancashire	30½	2,207,490	18	—	1091	—
Eastern Counties	226	6,513,026	18½	7	12317	8827
Eastern Union	44	531,031	50	—	1077	479
Edinburgh and Glasgow	48	2,275,435	64½	6	4508	4373
Glasgow, Paisley, and Ayr	69½	1,567,281	121	7	3413	2828
Glasgow, Paisley, & Greenock	23	835,918	18½	2	4289	1705
Gt. Southern & Western, Ireland	110½	1,343,718	29	—	1879	—
Great Western	241	9,714,939	109½	8	21266	19873
Kendal and Windermere	10½	147,001	24½	—	242	—
Lancaster and Carlisle	70	1,309,913	60½	—	1643	—
London and North Western	382	18,042,004	162½	10	49073	47657
London and Blackwall	4	1,102,717	6	1½	1302	1383
London, Brighton, & South Coast	137½	5,109,667	48¾	7	10738	9896
London and South-Western	186½	5,836,132	60¾	9	10181	7810
Londonderry and Enniskillen	14½	—	24½	—	138	—
Manchester & Leeds	147½	5,036,391	96	5½	10297	7974
Manchester, Sheffield, & Lincolnsh.	49½	1,678,108	89	5	2878	2404
Maryport and Carlisle	28	414,895	—	—	621	591
Midland Company	371	7,862,274	116½	7	23264	20941
Newcastle and Carlisle	65	1,184,080	118	5	2676	2397
Norfolk	70½	1,199,689	110	7	2591	1720
North British	78	1,459,906	29¾	—	3668	2249
Shrewsbury and Chester	17	591,158	21½	—	595	—
South Devon	29	1,061,283	29	5	1044	641
South-Eastern	157½	5,888,411	34½	3¾	11543	10545
Taff Vale	38	888,411	—	6½	1464	1394
Ulster	25	358,353	52	5½	855	636
Whitehaven Junction	12	91,974	—	—	262	—
York, Newcastle, & Berwick	228½	3,683,102	34¾	9	13508	—
York and North Midland	182½	2,483,256	76	10	10073	8352

Total earnings for last week, £305,232, being an increase of £30,014 over last year.

FOREIGN RAILWAYS.

Amiens to Abbeville	28	573,338	—	4	749	—
Dutch Rhenish	57½		3¼	—	1755	1628
Northern of France	209¼	2,000,000	11¼	4	14441	8012
Orleans to Tours	72	600,000	—	4	3412	3102
Paris and Orleans	82	2,011,720	48	12½	8553	8608
Paris and Rouen	85	2,082,916	36	8½	9112	8075
Rouen and Havre	59½	—	2¾	4	3619	—
Strasburgh and Basle (monthly)	88	—	8	1½	6738	9439

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Adair's Main 16 6—Chester Main 17 6—Davison's West Hartley 19—Holywell Main 17 6—North Percy Hartley 19—Original Tanfield 15 6—Stewart's Hartley 18—Tanfield Moor 18—West Hartley 19—Wall's End Brown's Gas 15 9—Bell and Brown 19—Gosforth 19—Wharncliffe 19—Belmont 19 3—Bell 19 3—Haswell 20—Hetton 20—Lambton 19 9—Richmond 19 3—Kelloe 19 9—Thornley 19—Brown's Deanery 19—Richardson's Tees 18 6—the Dukes 19 6—Derwentwater Hartley 18 6—Howard's West Hartley Netherton 19.—Ships at market, 41; sold, 36; unsold, 5.

WEDNESDAY.—Carr's Hartley 19—Chester Main 18—Davison's West Hartley 19—Hasting's Hartley 19—Holywell Main 18—North Percy Hartley 19—Original Tanfield 16—Ord's Redheugh 16 9—Tanfield Moor 18 6—West Hartley 19—Wylam 17—Wall's End Acorn Close 19 6—Bewicke and Co. 19 6—Gosforth 19 6—Killingworth 19 6—Northumberland 19—Riddell's 19 6—Wharncliffe 19 6—Eden Main 20—Belmont 20—Braddyll's Hetton 20 6—East Hetton 19 6—Haswell 20 6—Hetton 20 6—Lambton 20 6—Murton 20 6—Shotton 20 3—Stewart's 20 6—Caradoc 20 6—Hartlepool 20 6—Hudson's Hartlepool 20—High Thornley 18 6—Heugh Hall 19 6—Kelloe 20 6—Adelaide Tees 20 6—Cowndon Tees 19 6—Richardson's Tees 19—Seymour Tees 20—the Dukes 20—West Tees 19—Cowpen Hartley 19—Derwentwater Hartley 18 6—Howard's West Hartley Netherton 19—James and Aubrey's Stone 20.—Ships at market, 28; sold, 23; unsold, 15.

FRIDAY.—Davison's West Hartley 19—Holywell Main 17 6—Original Tanfield 16—Tanfield Moor 18 6—West Hartley 19—Wylam 17 3—Wall's End High Thornley 19 6—Seymour Tees 20 6—Cowpen Hartley 19—Howard's West Hartley Netherton 19—James and Aubrey Stone Coal 20.—Ships at market, 20; sold, 14; unsold, 6.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Eleven o'clock.

Bank Stock, 7 per Cent., 196 ½	Belgian Bonds, 4½ per Cent., 92½
3 per Cent. Reduced Ann., 87⅞ ¾ ⅞	Dutch, 2½ per Cent., 55¼ 6
3 per Cent. Consols Ann., 87⅞	Brazilian, 5 per Cents., 84
3 per Cent. Annuities, —	Chilian, 6 per Cents., 90
3¼ per Cent. Ann., 88⅞ 9¼ 8⅞	Mexican, 5 per Cents., 19 ¼
Long Annuities, 9⅛	Spanish, 5 per Cents., 19⅞
India Stock, 10½ per Cent., 241	Ditto 3 per Cents., 29⅞
3 per Cent. Consols for Acct., 87⅞ 7	Portuguese, 4 per Cents., 25
Exchequer Bills, 1000*l.* 3d., 3 pm. par 3 pm.	Russian, 5 per Cents., 110½

MINES.—During the week, the mining share market has presented some little activity, if we may judge from the amount of business done, and doing. We find that several mines have made some important discoveries, whilst others have considerably improved; and a demand for shares has been the result. We have had inquiries for shares from the country in some of those mines which have remained dormant for a long period, and may, therefore, calculate on some good resulting, or favourable changes taking place. Upon the whole, we may consider that a general improvement has taken place, and that the mining share brokers have not been dissatisfied with their week's transactions.

During the latter part of last week, Callington Mine shares were in demand. On Saturday and Monday advices were received from the mines that the copper lode had been intersected in the 70 fm. level, and found worth 40*l.* per fm. This, with the other recent discoveries, created a greater demand; and shares have since changed hands at 40*l.* per share—giving a rise of 10,000*l.* on the mine, taking the market value of the shares.

The continued improvement in Holmbush has also found new owners for shares at advanced prices. A few Gwinear Consols have been offered at our present quotations, but there is nothing in the weekly report to warrant such a depreciation—a forced sale, or one of necessity, appears to have been the main cause of the decline.

Since the meeting of the Condurrow adventurers, these shares have been in request—several changed hands last week at and under 30*l.* per share; and, during the present week, they have advanced considerably.

The continued improvement in the Bedford Mines are likely to create a movement in these shares, but few transactions at an advance have taken place. Inquiries for East Crowndales were made during the last week at former quotations, but the continued improvements have created a demand at better prices.

West Seton, West Basset, North Roskear, Trehane, Carn Brea, Herodsfoot, and West Wheal Tolgus, have been sought for at buyers' prices, with the exception of the first, which may obtain a great advance.

Shares in the following mines have changed hands during the week—viz.: Callington, Holmbush, East Crowndale, Bedford, Mendip Hills, West Wheal Treasury, Sonth Basset, Gwinear Consols, Tavy Consols, Devon and Courtenay, Treleigh, Franco, Condurrow, Trehane, Trelawney, South Trelawney, Herodsfoot, Mary Ann, Herodscombe, West Seton.

In the foreign mines very few transactions appear to have been done; the chief business has been in Australians, in which several shares have changed hands, and a few in Asturians. Advices have been received from the Brazilian Mines, which, upon the whole, may be considered favourable. At Bananal, the newly-acquired property of the Imperial Brazilian Company, much activity prevails; and we may fairly calculate on their having drained the mine by this time, and being advised thereof by the next, or following, arrivals.

From St. John del Rey the report is favourable, showing the produce for the month of May, from the two mines of Morro Velho and Cata Branca, to be upwards of 130 ounces of gold.

The Alten Mines report shows an increase of ore, both in quality and quantity, from the Raipas Mine—this is as we anticipated, which may have been gathered from our observations a few weeks since.

RAILWAYS.—A little more firmness in the share market was observable at the commencement of the week than characterised the principal portion of the previous one. Late on Tuesday, a slight declination took place; but more business was done on Wednesday, without any material alteration in prices. The week closed under circumstances of more elasticity, owing probably to a slight improvement which took place in Consols.—Shares in railways do not command however that attraction which might be expected, and debentures are certainly flat.

At Messrs. Lamond's sale, on Wednesday, shares were in a very depressed state, and the quotations showed a marked decline in many lines. East Indian are almost unsaleable at the quotations.

JOINT-STOCK BANKS.

Shares.	*Companies.*	*Paid.*	*Div. p. cent.*	*Price.*
22,500	Australasia	£40	£3	£17½ 18½
20,000	British North American	50	5	45 46
20,000	Colonial	25	5	15½ 16
—	Commercial of London	20	6	22 23
4,000	Ionian State	25	6	24½ 25
60,000	London Joint-Stock	10	6	16½ 17½
30,000	London and Westminster	20	6	26½ 27
10,000	National Provincial of England	35	5	36½ 38
20,000	National of Ireland	22½	5	19 19½
20,000	Provincial of Ireland	25	8	44½
4,000	Ditto New	10	8	16
20,000	Union of Australia	25	6	24 25
10,000	Ditto New	2½	6	2½ 2½
60,000	Union of London	16	5	12½ 13½

GAS-LIGHT AND COKE COMPANIES.

Shares.	*Companies.*	*Paid.*	*Div. p. cent.*	*Price.*
5,000	British (London)	£18	£1*	£18
5,000	Ditto (country)	19	1⅛*	24 24½
1,000	City of London	100	10	300
1,000	Ditto New	100	10	300
4,000	Equitable	50	2½*	38
10,000	European	20	1⅞	18 19
12,000	Gas-Light and Coke Chartered Co.	50	6	57½ 58½
6,000	Ditto New	10	6	11 12
9,000	General United Gas-Light Company	50	2	17½ 18½
10,000	Imperial	50	6	80 82
46,400*l.*	Ditto Debentures	100	4	100
8,000	Imperial Continental	39½	4½*	61 63
7,000	Ditto New	28	4½*	61
54,500*l.*	Ditto Debentures	100	5	100 102
2,000	Independent	40	6	64
3,000	London	50	6	50 51
3,000	Ditto	50	5	45 47
9,000	Phœnix, or South London	43	5	34½ 35
1,000	Ratcliff	80	5	75
4,000	South Metropolitan	25	6	31½ 32½

MISCELLANEOUS COMPANIES.

Shares.	*Companies.*	*Paid.*	*Div. p. cent.*	*Price.*
10,000	Assam Tea Company	£20	—	£ 3
1,080	Auction Mart	—	£ ½	26 28
10,000	Australian Agricultural	30	1	20 22
10,000	Australian Trust	35	—	30
8,000	British Alkali	25	4	16½ 16⅞
10,000	British American Land	35½	—	14
8,600	British Rock and Patent Salt	35	18	11
8,915	Canada	32½	6	28½ 30
—	City Bonds (Navigation)	—	3½	89
1,800	Corn Exchange	37½	1½	26½
5,000	Droitwich Patent Salt	25	½*	11
2,700	Equitable Reversionary	95	4½	87 90
—	General Reversionary Interest	100	5	104 106
20,000	General Steam Navigation	14	1⅞*	23 24
—	Hudson's Bay Stock	—	10	230 240
2,100	Hungerford Market	100	½	—
1,500	London Commercial Sale Rooms	—	1½	31 32
8,000	London Reversionary	22	—	23 24
300	Margate Pier	—	10	196
10,000	Mexican and South American	7	—	3½ 4
20,000	New Brunswick	75	—	—
11,600	Peninsular and Oriental Steam	50	7	57½
6,600	Ditto	40	—	57½
5,387	Reversionary Interest Society	100	4½*	97 98
—	Royal Mail Steam	—	5⅞	54⅞ 55½
8,000	South Australian	25	6	—
20,000	Upper Canada	100	5	93 94
20,000	Ditto	—	5	93 94
10,000	Van Diemen's Land	20	—	3 4

* Those marked with an asterisk (*) are dividend per share.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending Aug. 21, was 16,549; amount of money, £68 19s. 1d.

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars ....per oz. £3 17 9	New dollars..........per oz. £0 4 10½
„ Portugal pieces.... 0 0 0	Silver in bars (standard) 0 4 11⅞

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	7	12
512	Albert Consols	1	2½
1024	Alfred Consols	4½	30
256	Alternum Consols	2	12
235	Andrew and Nangiles	28½	16
10000	Ayrshire Iron Company	5	4½
1624	Balleswidden	9	18
128	Balnoon Consols	25	25
10000	Banwen Iron Co.	2	—
1000	Barristown	4½	10
4000	Bedford	2½	3½
128	Besore Lead Mine	14	10
315	Birch Tor Tin Mine	24½	7½
8000	Blaenavon	50	23
100	Botallack	175	140
120	Brewer	5	7
10000	British Iron, New, regis.	10	16
—	Ditto ditto, scrip	10	19
128	Budnick Consols	52½	40
128	Burthy	20	21
100	Bwlch Cwmerfin	20	—
128	Callestock	17	30
1000	Callington	19	40
256	Caradon Copper Mine	9½	1
256	Caradon Mines	22½	17
256	Caradon United	24	10
256	Caradon Wh. Hooper	20	4
1000	Carn Brea	15	105
2048	Carmarthen Consols	2	3
2048	Cascade	1	1
112	Charlestown	200	100
166	Cleveland	9	5
512	Coatlithe Hill	½	1-1¼
1900	Combmartin	7½	3
500	Comblawn	5	4½
128	Comfort	45	100
256	Condurrow	20	37½
2560	Cook's Kitchen	1⅝	5½
1000	Coombe Valley Quarry	1½	1½
1000	Copper Bottom	1	5
1024	Cosheen	4½	20
240	Craddock Moor	15½	15
128	Creeg Braws	120	100
500	Cubert Mine	12½	23
2048	Dartmoor Consols	2	4
7100	Derwent	8½	5
1024	Devon&CourtenayCon.	6	2
1024	Devon Great Consols	1	250
1000	Dhurode	2	5
186	Dolcoath	30	50
2560	Drake Walls	4	4
10000	Durham County Coal	45	9
256	East Alvenney	6	10
112	East Caradon	42	42
2048	East Crowndale	4½	3½
512	East Combe Silver-Lead	6½	6½
128	East Pool	5	55
100	East Relistian	22	40
9000	East Tamar Consols	1½	2
—	East Wheal Albert	1	3
94	East Wheal Crofty	280	125
256	East Wheal Fortune	2	3
128	East Wheal Rose	50	1300
2048	East Wh. Rough Tor	½	2
—	East of Scotland Iron Co.	2½	1½
123	East Wheal Seton	14	20
256	Elborough	1½	2½
256	Exmoor Wh. Eliza	3½	11
512	Fowey Consols	40	45
6400	Gadair	2	2
20000	Galvanised Iron Co.	10	9½
10000	Gen. Mining Co. for Irel.	2	1½
2048	Georgia Tin Mines	1½	1½
256	Gonamena	31½	70
128	Goonvrea	4	1½
244½	Grambler & St. Aubyn	—	12
100	Great Consols	1000	400
256	Great Callestick Moors	22	25
2560	Great Michell Consols	1½	3
256	Great Resugga Moor	3	3½
512	Gt. Wh. Rough Tor Con.	6½	30
1500	Great South Tolgus	2	2
100	Grogwinion	5	—
1000	Gunnis Lake	1½	3
256	Gwinear Consols	5	15
1000	Hanson	14	2
1000	Harrowbarrow Old Mine	8½	2
800	Hawkmoor	3	2
6000	Heignston Down Con.	½	2½
256	Herodscombe	2½	10
256	Herodsfoot	14	18
10000	Hibernian	12½	1⅞
239	Hobb's Hill	6	3
1000	Holmbush	19	9
827	Kirkcudbrightshire	5½	8
2048	Lamheroe Wh. Maria	10	3
2048	Lanivet Consols	4	2½
200	Larkholes	1	3
128	Lelant Consols	90	60
160	Levant	—	90
1000	Lewis	15	6½
1000	Llwyn Malees	5	—
3600	Llynvi Iron	50	60-65
256	Lostwithiel Consols	12	12
128	Ludcott	3	3
6000	Marke Valley	10	½
5000	Mendip Hills	2½	1½
5000	Merionethshire Slate & Slate Slab Co.	1½	2⅞-2½
20000	Mining Co. of Ireland	7	7½
256	New East Crowndale	3½	3½
128	North Fowey Consols	30	30
100	North Pool	45	370
70	North Roskear	10½	373
512	North Treburget	2	3
100	North United	72	15
256	North Wh. Abraham	½	12
262	North Wh. Leisure	1½	3½
128	North Wh. Providence	2½	8
15000	Northern Coal Co.	23	2
1200	Old Delabole Slate Co.	25	50
128	Par Consols	900	1000
256	Penhallow Moor	15	4
4000	Pennant	1½	1½
100	Penrhiw	30	65
128	Pen-y-Cefn Mine	50	55
1280	Perran St. George Un.	13	20
128	Perran Wh. Virgin	9½	15
512	Plymouth Wh. Yeoland	4½	18
256	Polsaith Consols	2	4
112	Providence Mines	35	45
256	Redruth Consols	3	2
10000	Rhymney Iron	50	30
10000	Ditto New	7	6½
256	Rose Consols	10	2
1000	Rosewall Hill	1	5
256	Rosewarva Mines	—	12
—	Shotts Iron Company	50	65
2500	Silver Valley	5	2
1024	South Callington	5	7½
128	South Caradon	10	450

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
2000	South Dolcoath	2	1
256	Sth. Friendsh. Wh. Ann	16	14
200	South Harvannah	10	25
9000	South Tamar	½	½
256	South Tolgus	2½	25
800	South Towan	10	1½
256	South Trelawney	15½	7
128	South Yeoland	16½	20
128	South Wheal Basset	110	65
124	South Wh. Francis	160	210
256	South Wh. Hope	—	5
1000	South Wh. Maria	2½	2½
256	South Wheal Rose	11½	1
10000	Southern&Western, Irish	2	4-5
280	Spearne Moor	30	40
256	St. Austell Consols	9	14
94	St. Ives Consols	—	320
128	St. Michael Penkivel	5	10½
1000	Stray Park	43	29
9600	Tamar Consols	5	5½
1024	Tavy Consols	3½	5
6000	Tincroft	7	8
1000	Tin Vale Consols	2	2½
256	Ting Tang	15	10
128	Tokenbury	143½	10
256	Trehane	2	24
5000	Treleigh Consols	6	4
2000	Trenance	2	—
256	Trenow Consols	30	15
96	Tresavean	10	250
120	Trethellan	5	20
120	Treviskey and Barrier	130	150
288	Trevean	½	25
256	Trewollack	20	10
128	Trewellard	12	26½
6000	United Hills	5	½
100	United Mines	300	350
256	Wellington Mines	15	30
128	West Basset	45	28
256	West Caradon	20	168
128	West Cargoll	2	12
512	West Fowey Consols	40	15
256	West Grambler	7	8
256	West Providence	1	16
200	West Seton	40	90
—	West of Scotland Iron Co.	210	212
120	West Trethellan	5	35
256	West United Hills	2½	4
256	West Wh. Friendship	7½	3
1845	West Wheal Jewel	11	1½
2560	West Wh. Maria	2½	1
2560	West Wheal Rough Tor	½	2
256	West Wheal Shepherd	5	2½
256	West Wheal Tolgus	21½	1½
256	West Wheal Treasury	19	10
5200	Wicklow Copper	5	12½
184	Wheal Adams	41	10
1000	Wheal Agar	—	8
256	Wheal Albert	10	8
128	Wheal Acland	13	2
256	Wheal Allen	2	5
237	Wheal Anderton	16½	26
128	Wheal Ann	—	50½
512	Wheal Ann, Bridford	1	2
512	Wheal Anna Maria	—	5
128	Wheal Arvose	8½	5
1024	Wheal Ash	3	12
120	Wheal Bal	5½	20
2560	Wheal Barbara	1½	3
256	Wheal Benny	6½	5
256	Wheal Blencowe	8	8½
256	Wheal Bucketts	20	22
256	Wheal Byon Consols	½	½
256	Wheal Calstock	3	4
136	Wheal Clifford	190	190
128	Wheal Courtenay	—	20
6000	Wheal Curtis	2	2-2½
256	Wheal Dyke	12	13
256	Wheal Fortescue	5½	8
512	Wheal Fortune Consols	3½	6½
2048	Wheal Frederick	2	2
388	Wheal Franco	27	35
1024	Wheal Grace	2	2½
128	Wheal Harriet	45	50
256	Wheal Jane	21	15
256	Wheal Louisa	8½	12
112	Wheal Margaret	79	250
256	Wheal Maria (Hayle)	24	10
4000	Wheal Martha Consols	5	2
512	Wheal Mary Ann	5	23
256	Wheal Mary Consols	38	25
256	Wheal Mary (Lanivet)	6½	4
256	Wheal Maude	1½	1½
210	Wheal Prospect	4	7
120	Wheal Reeth	27	30
128	Wheal Rose	60	45
2048	Wheal Samson	—	20
99	Wheal Seton	214	850
256	Wheal Sisters	29½	35
256	Wheal Sophia	3½	10
128	Wheal Spearne	10	75
128	Wheal St. Ann	9	15
260	Wheal Trelawney	7½	108
256	Wh. Tremaine (St. Ervan)	1½	20
256	Wheal Tremayne	35	30
128	Wheal Trew	20	21
256	Wheal Trevenna	3	4
92	Wheal Tryphena	140	265
128	Wheal Venland	12½	10
256	Wheal Vlow (Perranz.)	½	½
184	Wheal Vyvyan	—	60
256	Wheal Williams	6	18

FOREIGN MINES.

Shares.	Company.	Paid.	Price.
5000	Alten Mining Company	14½	3½
15000	Asturian Mining Co.	10	7
20000	Australian	2	4½
10000	Anglo-Mexican Co.	100	2
12374	Ditto Subscription	25	2½
3000	Bolanos	150	6½
2000	Ditto Scrip	15	6½
12000	Brazilian Imperial	22	7
10000	Cobre Copper Co.	40	18
8500	Colombian Co. regis.	55	} 1
5000	Ditto Scrip	5½	}
5000	Copiapo Mining Co.	14	3
10000	General Mining Ass'n.	20	15½
5000	Kinzigthal Mining Ass.	2	2½
20051	Mexican Company	59	—
2000	Mexican & South Amer.	7	3
5000	Mocaubas & Cocaes	25	4½-5
29320	{ Rl. del Monte, regis. / Ditto unregistered }	28½	av. 2
	Ditto Red Debentures	—	20
	Ditto Black ditto	—	14
	Ditto Loan Notes	150	97½
7000	Royal Santiago	10	5
2000	Pachuca Mines	4	4½
11000	St. John del Rey	15	6
43174	United Mexican	28½	2

SOUTH AUSTRALIAN SHARE MARKET.

Shares.	Company.	Paid.	Price.	Shares.	Company.	Paid.	Price
2000	Adelaide	5	7½	18	South Para	15	50
6000	Barossa Range	½	3	1000	Poonawurta	—	9½-10
2464	Burra Burra	5	110	400	Princess Royal	34	259
436	Grand Junction	15	28	10000	Royal Mining Company	½	1½
200	Greenock Creek	5	12	10000	Royal South Australian	—	55½
100000	Scottish Invest. Co.	1	1½	600	Victoria	2	3
500	Wakefield	2	3				

SOUTH AUSTRALIA AND NEW ZEALAND.

100000 North British Australasian (Kaw-aw, &c.) .. 1 .. ½-1

⁂ *We should feel greatly obliged by agents, or others interested, furnishing us with such corrections for our Share List as we may not have received through our usual channels of information—our object being, to present as accurate a list of prices as can be obtained—to procure which, we solicit the aid of correspondents in general.*

KILLING THE GOLDEN-EGGED GOOSE.—An English engineer was employed in mining for coal in Syria. The mine was profitable, but some one or other of the officials suggested that the Englishman did not get coal as fast or in such large quantities as the natives could, if they were allowed to try. Permission was granted, and the engineer sent off to Alexandria upon some excuse. Meantime, the Turks set to work, and in two or three days, with very little labour, produced five times as much coal as the Englishman had. This was reckoned an immense triumph; but one fine morning the whole excavation fell in and buried the workmen. What was the fact? The engineer, as he undermined, had left large pillars of coal to support the earth above, which the Turks immediately knocked down, and the prize served to fill their baskets on the first days of their supposed triumph. The catastrophe, however, would, one should have supposed, have been a lesson to them. No such thing. "It was the will of God!" So they killed the goose that laid the golden egg; but the moral of the tale was thrown away.—*Lord Castlereagh's Journey to Damascus.*

LATEST CURRENT PRICES OF METALS.

LONDON, AUGUST 27, 1847.

	£ s. £ s. d.		£ s. £ s. d.
IRON—Bar *a*..Wales..ton	8 12 6 8 15 0	COPPER—Ordin. sheets, lb.	0 0— 0 0 11
„ ..London ..	0 0— 9 15 0	„ bottoms ..	0 0— 0 0 12
Nail rods „	0 0—10 10 0	YELLOW METAL SHEATHING	0 0— 0 0 9½
Hoop (Staf.) „	0 0—11 15 0	TIN—Com. blocks *g*..*cwt.*	0 0— 4 5 0
Sheet „	0 0—13 0 0	„ bars	0 0— 4 6 0
Bars „ „	0 0—11 5 0	Refined	0 0— 4 8 0
Welsh cold-blast foundry pig }	4 10— 5 5 0	Straits *h*	0 0— 4 4 0
		Banca	0 0— 4 6 0
Scotch pig *b*, Clyde	3 7— 3 8 0	TIN-PLATES—Ch., IC *i*, box	1 8— 1 10 0
Rails, average	8 10— 9 0 0	„ IX	1 14— 1 16 0
Russian, CCND *c*	0 0— ——	Coke, IC	0 0— 1 5 0
„ PSI	0 0— ——	„ IX	0 0— 1 11 0
„ Gourieff	0 0— ——	LEAD—Sheet *k* ....ton	0 0—19 10 0
„ Archangel	0 0—13 10 0	Pig, refined	0 0—20 5 0
Swedish *d*, on the spot	11 5—11 10 0	„ common	0 0—18 10 0
„ Steel, fagt.	0 0—16 5 0	„ Spanish, in bd.	0 0—18 0 0
„ „ kegs *e*	14 15—15 0 0	SPELTER—(Cake) *l* on spot	19 0—19 2 6
COPPER—Tile *f*	0 0—97 0 0	„ „ for arrival	0 0—19 0 0
Tough cake	0 0—98 0 0	ZINC—(Sheet) as export.*	0 0— 27 0 0
Best selected	0 0 101 0 0	QUICKSILVER *n* ....lb.	0 0— 0 4 6

a Discount 2½ per cent. *b* Net cash. *c* Discount 2½ per cent. *d* Ditto *e* In kegs ½ and ⅜-inch. *f* Discount 3 per cent. *g* Ditto 2½ per cent. *h* Net cash in bond. *i* Discount 3 per cent. *k* Ditto 2½ per cent. *l* Net cash. *m* Discount 1½ per cent. *n* Discount 1½ per cent. * For home use it is 32*l.* per ton.

[From our Correspondent.]

IRON.—Welsh and Staffordshire continue in good demand, and prices are firm; in Scotch Pig very little doing, and price appears to have a downward tendency—the stock on hand is estimated at 100,000 tons; Swedish moves off at quoted rates; in Steel nothing doing.—COPPER remains steady.

TIN.—English is reduced this day 3s. per cwt.; Foreign remains at last week's quotations.—TIN-PLATES and LEAD are steady, but neither in much demand.

SPELTER is again lower, owing, no doubt, to the absence of demand for India.

GLASGOW PIG-IRON TRADE, AUG. 26.—Our market for the last week has been very languid. A few transactions have taken place at 67s. to 68s., cash—according to period of settlement. To-day the quotations are, No. 3, 67s.; mixed Nos., 67s. 6d. to 68s.; No. 1, 69s.—Cash, free on board.

LEAD ORES

Mines.	*Tons.*	*Amount.*	*Purchasers.*
Sold at Belfast, on the 18th August, 1847.			
Conlig	100	£10 7 6	Newton, Keates, & Co.
Sold at Holywell, on the 19th August, 1847.			
Barristown	48	£14 15 0	Newton, Keates, & Co.
Machynlleth	49	11 0 6	Walker, Parker, & Co.
ditto	5	9 16 0	Newton, Keates, & Co.
Sold in London, on the 19th August, 1847.			
Cubert	60	£11 16 0	Walker, Parker, & Co.
Sold at the Mine, on the 20th August, 1847.			
East Rose	92	£13 14 0	Michell & Son.
ditto	83	13 1 6	Newton, Keates, & Co.
ditto	80	12 7 6	ditto
Sold at Liskeard, on the 21st August, 1847.			
Wheal Mary Ann	34	£19 15 0	Michell & Son.
ditto	21	6 2 6	ditto
Sold in London, on the 21st August, 1847.			
East Tamar Consols	50	£12 0 0	Newton, Keates, & Co.
Sold at Liskeard, on the 23d August, 1847.			
Trehane	41	£18 11 0	Walker, Parker, & Co.

COPPER ORES.

Sampled August 11, and Sold at Andrew's Hotel, Redruth, August 26, 1847.

Mines.	*Tons.*	*Price.*	*Mines.*	*Tons.*	*Price.*
United Mines	130	£4 4 0	Tresavean	113	£4 4 6
ditto	127	3 16 6	ditto	105	5 3 6
ditto	126	4 15 0	ditto	68	3 17 6
ditto	107	6 6 0	Par Consols	77	8 16 0
ditto	94	3 11 6	ditto	76	5 6 6
ditto	93	3 16 6	ditto	72	8 18 6
ditto	80	6 2 6	ditto	58	5 12 0
ditto	79	4 10 6	West Wh. Jewel	66	4 17 6
ditto	77	2 13 6	ditto	61	3 17 6
ditto	66	4 11 0	ditto	57	4 13 0
ditto	59	5 7 6	Treleigh Consols	61	6 2 6
ditto	54	4 6 6	ditto	59	13 16 6
ditto	45	3 6 6	ditto	54	3 16 0
ditto	23	4 1 0	West Trethellan	48	3 0 6
South Caradon	97	7 10 6	ditto	32	2 7 6
ditto	87	5 15 0	South Tolgus	35	6 1 0
ditto	85	6 9 6	North Downs	16	6 13 0
ditto	56	7 4 6	East Downs	9	7 2 6
ditto	29	4 3 6			

TOTAL PRODUCE.

United Mines	1170	£5183 17 0	Treleigh Consols	174	£1394 10 0
South Caradon	354	2306 4 6	West Trethellan	80	221 4 0
Tresavean	286	1284 6 0	South Tolgus	35	211 15 0
Par Consols	283	2049 14 0	North Downs	16	106 8 0
West Wh. Jewel	184	823 3 6	East Downs	9	64 2 6

Average Standard ....£108 2 0 | Average Produce 7⅞

Average Price per ton £5 4 6

Quantity of Ore ....2591 tons. | Quantity of Fine Copper, 192 tons 3 cwts.

Amount of Money £13,645 4 6

LAST SALE.—Average Standard......£ 95 12 0.—Average Produce...... 10½

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Mines.	Tons.	Amount.
Mines Royal	107	£ 593 6 10
English Copper Company	237	1215 15 3
Vivian and Sons	594	2868 17 6
Freeman and Co.	231	1658 14 7
P. Grenfell and Sons	553	2389 19 6
Sims, Willyams, and Co.	297	1587 4 4
Williams, Foster, and Co.	570	3331 6 6
Total tons	2591	£13,645 4 6

Copper ores, for sale on Thursday next, at White's Hotel, Pool.—Mines and Parcels.—North Roskear 941—Consolidated Mines 690—Tincroft 405—Wheal Seton 282—Fowey Consols 268—South Wheal Francis 263—Creeg Braws 178—South Roskear 111—Wheal Bucketts 100—Lanivet Consols 93—Wheal Harriet 74—South Wheal Basset 58—East Seton 44—Wheal Busy 42—Wheal Tryphena 27—Tretoil 12—Wheal Catherine 6.—3594.

Copper ores for sale on Thursday week, at Andrew's Hotel, Redruth.—Mines and Parcels.—Carn Brea Mines 901—Alfred Consols 419—United Hills 312—Par Consols 311—Wheal Prosper 218—Levant 129—Wheal Agar 58—Botallack 46—West Wheal Treasury 42—North Wheal Basset 40—Wheal Virgin 37—Tokenbury 36—Great Work 20—West Wheal Providence 19—Godolphin 12.—Total, 2600 tons.

COPPER ORES.

Sampled August 4, and Sold at Swansea, August 26, 1847.

Mines.	Tons.	Prod.	Stand.	Price.	Mines.	Tons.	Prod.	Stand.	Price.
Cobre	96	14⅞	91¼	£11 5 0	Cronebane	53	4⅞	117	£3 6 0
ditto	91	14⅞	91½	11 3 0	ditto	41	4⅞	119	3 2 0
ditto	86	14⅞	93¼	11 3 0	ditto	38	3½	125½	2 12 0
ditto	72	14½	94¼	11 1 0	ditto	26	4⅞	118	3 4 0
ditto	44	13⅞	93	10 10 6	ditto	24	4½	122½	2 16 0
ditto	6	17⅞	90½	13 15 6	ditto	4	4⅞	118	3 1 0
Knockmahon	118	5⅞	113¼	4 5 6	ditto	2	47½	78⅞	35 0 0
ditto	103	9½	101½	7 7 6	Tigrony	2	47½	76½	34 0 0
ditto	63	3½	128½	2 5 0	Copiapo	93	23½	85½	17 9 0
ditto	61	8⅞	104½	6 9 6	ditto	63	22½	87½	17 14 0
Burra Burra	76	33¼	84½	26 0 0	ditto	46	24½	88	19 1 6
ditto	67	30⅞	84½	23 15 0	Kapunda	96	20⅞	90½	16 0 0
ditto	60	33⅞	85½	26 12 6	ditto	53	20½	88	15 15 6
ditto	50	24½	88½	19 7 6	ditto	14	24½	87	19 4 0
ditto	16	27½	86½	21 5 6	Holyford	90	24⅞	86	19 1 0
ditto	3	31⅞	85½	24 15 0	ditto	50	24½	87	19 6 0
ditto	53	19⅛	88½	15 2 0	Sydney	92	13½	93½	10 3 0
Berehaven	108	9⅞	101½	7 12 6	Chili	61	28⅞	83½	21 13 0
ditto	96	9⅞	99½	7 9 6	Lackamore	30	10½	96⅞	7 11 0
ditto	92	9⅞	100	7 2 6	ditto	11	29½	84½	22 16 0
Cuba	93	17	93	13 11 6	Aberdovey	24	13½	92	10 3 0
ditto	85	18½	87½	14 2 0	Ballymurtagh	4	59⅞	74	42 0 0
ditto	65	23½	86½	18 1 0					

TOTAL PRODUCE.

Cobre	395	£4304 18 0	Kapunda	163	£2640 17 6
Knockmahon	345	1800 16 0	Holyford	130	2679 10 0
Burra Burra	325	7348 9 0	Sydney	92	933 16 0
Berehaven	296	2196 12 0	Chili	61	1320 13 0
Cuba	243	3634 4 6	Lackamore	41	477 6 0
Cronebane	188	633 8 0	Aberdovey	24	243 12 0
Tigrony	2	68 0 0	Ballymurtagh	4	168 0 0
Copiapo	202	3615 8 0			

Total tons, 2521.—Amount of money, £32,155 10s. 0d.

Copper ores for sale Sept. 9.—Cuba 101, ditto 96, ditto 90, ditto 60, ditto 50, ditto 44.—Kapunda 82, ditto 80, ditto 58, ditto 43, ditto 32.—Santiago 122, ditto 104.—Tigrony 56, ditto 4.—Cronebane 10.—Chili 60.—Ballymurtagh 58.—Burra Burra 48.—Total, 1198 tons.

COPPER ORES SOLD AT LIVERPOOL.

From	*Tons.*	*Price.*	*Purchasers.*
Valparaiso	85	£42 16 5	} Messrs. John Bibby & Sons, and the British and Foreign Copper Co.
ditto	85	17 3 2	}
ditto	97	37 10 0	}
ditto	87	37 8 0	}

THE COPPER DUTIES QUESTION.

TO THE EDITOR OF THE CORNWALL ROYAL GAZETTE.

SIR,—In the latter portion of my letter of the 17th July (inserted in the *Mining Journal* of the 7th August), I reserved to myself the right of declining to be guided by the *dicta* of the Manchester Chamber of Commerce, as to the change in the copper question in 1842, having been pernicious to "the manufacturing trade in that district;" preferring to wait, as a better authority upon that subject, for the presentation of the official accounts which had been moved for, and have since been printed. I will pass over this part of the question for a moment, and speak of coal, which I can dispose of in few words. In a previous passage of the same letter, whilst discussing the question of the coal trade with Chili, I conceded, for the sake of argument, in the absence of official information upon the subject, that the same quantity of coal which had been shipped from this country to Chili in the year 1845 (15,149 tons) might also have been sent in 1846. The official returns upon this subject, since presented, prove that I have been most liberal to my opponents; since, instead of 15,149 tons, of the declared value of 6880*l.* as shipped in 1845, the export to Chili last year was reduced to 8864 tons, of the declared value of 4507*l.*; and pursuing the same course of argument upon this subject, that I did in my former letter—viz.: assuming every ton of that coal to have been employed in smelting copper ores, when the 15,149 tons would have produced some 800 or 900 tons of copper in the year—it appears that the utmost quantity of copper that the actual quantity sent would smelt, would be little over 500 tons—so much for that ground of alarm. Now for the *veracious* statement of the Liverpool committee, that the revenue received from the importation of copper ores could only be "obtained by the sacrifice of important trading and manufacturing interests; whilst, indirectly, *by discouraging the export of our manufactures*, and diminishing the employment of our people, a great and permanent loss of revenue will undoubtedly be occasioned;" and the equally veracious declaration of the Manchester Chamber of Commerce, above quoted from their memorial, of the pernicious effects of the copper ore duty upon their trade. The countries from which (with the exception of our own colony, Australia), we chiefly receive copper ores, are Cuba, Chili, Peru, and Columbia. The Parliamentary return, just presented, to which I here refer, is restricted to the trade of those countries; showing the amounts of the exports to, and imports from, each of them. It may not be amiss here, to give the exact titles of the returns, as moved for; which were for "An account of the total declared value of all *exports* from the United Kingdom to Cuba, Chili, Peru, and Columbia, respectively, in each year from 1824 to 1846, both inclusive; distinguishing the produce and manufactures of the United Kingdom from foreign and colonial merchandise;" and "An account of the total official value of all *imports* into the United Kingdom, from Cuba, Chili, Peru, and Columbia, respectively, in each year from 1824 to 1846, both inclusive." These motions have been complied with, except as regards the year 1846, which is omitted; a note at the foot of the return stating, that "the year 1846 is unavoidably excluded from this return, a sufficient interval of time not having yet elapsed since the close of the year, to admit of the final adjustment of the registers, which show the trade with individual countries." I regret this omission of the last year, since it was my wish, in the consideration of this part of the question, to have brought it down to the latest possible period; and the more especially so, as I purpose making a comparison between the trade of the four years preceding 1842—the year of the duty, always so much dwelt upon by the Liverpool committee and their friends—and the transactions of the later years; similar to the course pursued in my letter of the 9th July, inserted in your publication of the 16th, with reference to the importations of ore from Cuba, Chili, and other countries. I will examine these details in the order in which they stand in the returns; and I, therefore, take Cuba first—

Exports from the United Kingdom to Cuba.

1838	£686,384		
1839	502,298	Total	£2,337,788
1840	538,229	Average	584,447
1841	610,877		
1842	386,679		
1843	648,145	Total	£2,469,996
1844	700,087	Average	617,499
1845	735,085		

In 8 years.....£4,807,784—Average, £600,973.
The exports of 1845 exceed those of 1842, by ..... £348,406, or 90 per cent.
Ditto ditto 1842 to 1845, by ..... 117,586, or 19 „
Ditto ditto 1838 to 1841, by ..... 150,638, or 26 „
Ditto ditto 1838 to 1845, by ..... 134,112, or 23 „

I could have given in this, and the succeeding statements, the full details, in strict accordance with the terms of the Parliamentary motion; but, in order to avoid the introduction of a large mass of figures, showing the respective amounts, in each year, of British produce and manufactures, and foreign and colonial merchandise, the aggregate amounts are here given; and I conclude it will be sufficient to observe that, of the whole amount exported, British produce and manufactures constituted 94·86 (say 95) per cent., and foreign and colonial merchandise 5·14 (say 5) per cent. I will further observe that, where these per centages exhibit fractional or decimal parts, if those parts do not exceed one-half of the whole number, they are omitted; and where they exceed one-half, they are carried on to the next figure.

Imports from Cuba into the United Kingdom.

1838	£335,522		
1839	393,121	Total	£1,782,982
1840	654,306	Average	445,745
1841	403,033		
1842	610,453		
1843	633,049	Total	£2,544,054
1844	608,663	Average	636,013
1845	491,896		

In 8 years.....£4,327,036—Average, £540,879.
The imports of 1845 fall short of those of 1842, by..... £118,557, or 19 per cent.
Ditto ditto 1842 to 1845, by..... 144,117, or 23 „
Ditto exceed those of 1838 to 1841, by..... 46,151, or 10 „
Ditto fall short of 1838 to 1845, by..... 48,983, or 9 „

Exports from the United Kingdom to Chili.

1838	£548,653		
1839	1,280,414	Total	£3,887,211
1840	1,562,869	Average	971,803
1841	495,275		
1842	1,071,509		
1843	1,057,502	Total	£4,230,920
1844	917,775	Average	1,057,730
1845	1,184,134		

In 8 years.....£8,118,131—Average, £1,014,766
The exports of 1845 exceed those of 1842 by £113,625, or 10 per cent.
ditto ditto 1842 to 1845 by 126,404, or 12 „
ditto ditto 1838 to 1841 by 212,331, or 22 „
ditto ditto 1838 to 1845 by 169,368, or 17 „
Of these exports British produce and manufactures constituted 87 per cent., and foreign and Colonial merchandise, 13 per cent.

Imports from Chili into the United Kingdom.

1838	£123,557		
1839	135,317	Total	£627,371
1840	178,322	Average	156,843
1841	190,175		
1832	247,943		
1843	332,744	Total	£1,520,287
1844	411,703	Average	380,072
1845	527,897		

In 8 years..... £2,147,658—Average, £268,547.
The imports of 1845 exceed those of 1842 by £279,954, or 113 per cent.
ditto ditto 1842 to 1845 by 147,825, or 39 „
ditto ditto 1838 to 1841 by 371,054, or 236 „
ditto ditto 1838 to 1845 by 239,350, or 96 „

Exports from the United Kingdom to Peru.

1838	£516,455		
1839	711,085	Total	£2,772,901
1840	895,612	Average	693,225
1841	649,749		
1842	730,807		
1843	709,457	Total	£3,086,435
1844	696,689	Average	771,609
1845	949,482		

In 8 years..... £3,859,336—Average, £7,344,217.
The exports of 1845 exceed those of 1842, by ..... £218,675, or 30 per cent.
Ditto ditto 1842 to 1845, by ..... 177,873, or 23 „
Ditto ditto 1838 to 1841, by ..... 256,257, or 37 „
Ditto ditto 1838 to 1845, by ..... 217,065, or 30 „
Of these exports British produce and manufactures constituted..... 90 „
And foreign and colonial merchandise ..... 10 „

Imports from Peru into the United Kingdom.

1838	£164,979		
1839	251,296	Total	£802,349
1840	169,621	Average	200,712
1841	225,953		
1842	279,772		
1843	269,512	Total	£1,287,820
1844	324,729	Average	321,955
1845	413,807		

In 8 years.....£2,090,669—Average, £261,334.
The imports of 1845 exceed those of 1842, by ..... £134,035, or 48 per cent.
Ditto ditto 1842 to 1845, by ..... 91,852, or 28 „
Ditto ditto 1838 to 1841, by ..... 213,095, or 106 „
Ditto ditto 1838 to 1845, by ..... 152,473, or 58 „

Exports from the United Kingdom to Columbia:—

1838	£204,690		
1839	299,697	Total	£1,102,157
1840	425,195	Average	275,539
1841	172,575		
1842	255,223		
1843	411,049	Total	£1,408,542
1844	297,682	Average	352,135
1845	444,588		

In 8 years.....£2,510,699—Average, £313,837.
The exports of 1845 exceed those of 1842 by £189,365, or 74 per cent.
ditto ditto 1842 to 1845 by 92,453, or 26 „
ditto ditto 1838 to 1841 by 169,049, or 61 „
ditto ditto 1838 to 1845 by 130,751, or 42 „
Of these exports British produce and manufactures constituted 89 per cent., and foreign and colonial merchandise 11 per cent.

Imports from Columbia into the United Kingdom:—

1838	£199,203		
1839	173,445	Total	£863,086
1840	195,401	Average	215,771
1841	295,037		
1842	260,938		
1843	472,449	Total	£1,741,864
1844	503,556	Average	435,466
1845	504,931		

In 8 years..... £2,604,960—Average, £325,619.

The imports of 1845 exceeded those of 1842 by £245,983, or 93 per cent.
ditto ditto 1842 to 1845 by 66,455, or 16 „
ditto ditto 1838 to 1841 by 289,150, or 134 „
ditto ditto 1838 to 1845 by 179,302, or 55 „

It will, however, be important, after showing what is the separate trade of each state or country, to give an aggregate view of the general transactions with the whole, which I, therefore, beg to introduce—

Exports from the United Kingdom to Cuba, Chili, Peru, and Columbia:—

1838	£1,956,182		
1839	2,793,494	Total	£10,100,607
1840	3,421,905	Average	2,525,014
1841	1,928,476		
1842	2,444,218		
1843	2,826,153	Total	£11,195,893
1844	2,612,233	Average	2,799,973
1845	3,313,289		

In 8 years ..... £21,295,950—Average, £2,661,993
The exports of 1845 exceed those of 1842 by £869,071, or 35 per cent.
ditto ditto 1842 to 1845 by 514,316, or 18 „
ditto ditto 1838 to 1841 by 785,275, or 31 „
ditto ditto 1838 to 1845 by 651,296, or 24 „
Of these exports, British produce and manufactures constituted 90 per cent., and foreign and colonial merchandise, 10 per cent.

Imports into the United Kingdom from Cuba, Chili, Peru, and Colombia.

1838	£823,261		
1839	963,179	Total	£4,076,288
1840	1,185,650	Average	1,019,072
1841	1,114,198		
1842	1,399,106		
1843	1,907,747	Total	£7,094,025
1844	1,848,651	Average	1,773,506
1845	1,938,521		

In 8 years .....£11,170,313—Average, £1,396,289.
The imports of 1845 exceed those of 1842 by £539,415, or 38 per cent.
ditto ditto 1842 to 1845 by 165,015, or 9 „
ditto ditto 1838 to 1841 by 919,449, or 90 „
ditto ditto 1838 to 1845 by 542,232, or 39 „

It will be seen that, of all these returns, the only line which exhibits any falling off is the value of the imports from Cuba in the year 1845. That year's business shows, by comparison with the transactions of three out of the seven preceding years, a diminution which, as I stated in my last letter, I cannot doubt will be found to be attributable to certain causes there pointed out, in a great measure, if not wholly, apart from the question of duty. But the trade of the last year in the return (1845), whether of imports or exports, very far exceeds, as here shown, the average of the business of the whole eight years in each country, not excepting Cuba, taken separately, as well as in the aggregate returns of the four countries. It will be observed, that I have here taken, from my statements, only the last eight years, from 1838 to 1845, out of the whole 22 years for which the returns are given; and, judging it possible, that parties ignorant of the real state of the case, may suppose that the other 14 years, from 1824 to 1837, might exhibit a result less favourable to my argument, I have judged it right to make a short estimate of the state of the exports and imports, to and from each of the four countries for the first 14 years of the return; and I find the following result:—

The exports to Cuba, in 1845, exceed the average of those of the 14 years, from 1824 to 1837, both inclusive, by 88 per cent.
The imports from Cuba, in 1845, exceed those of the 14 years average, by 85 per cent.
The exports to Chili for 1845, are in excess by ..... 71 per cent.
The imports from Chili by ..... 633 per cent.
The exports to Peru for 1845, are in excess by ..... 124 per cent.
The imports from Peru by ..... 431 per cent.
The exports to Columbia for 1845, are in excess by ..... 77 per cent.
The imports from Columbia ..... 500 per cent.
The aggregate exports to the four countries, in 1845, exceeded the 14 years average by ..... 89 per cent,
And the aggregate imports from the four countries, in 1845, exceeded the 14 years average by ..... 288 per cent.

Thus, view it in whatever manner we may, the trade of the last year brought under our notice exceeds that of all the preceding periods to an extent that ought to silence, and put to shame, the random assertions of the Liverpool committee, and their coadjutors, with reference to the injury which they allege to be inflicted upon the general commerce of the United Kingdom, with copper-producing states of the New World by the payment of the small duty levied upon their ores.

Among the statements put forth by this Anti-British Mining League, as already quoted from their letter, is that which asserts the present policy to be calculated to produce a diminution of the employment of our people. In furtherance of this part of their case, the Liverpool committee, in a note inserted at page 14 of their printed letter, under the head of "statement of the working of the Cobre Copper Mines, showing the total receipts, and the proportion thereof expended in England," give the quantity and value of ores sold in the five years, 1842 to 1846, as 95,686 tons; which produced 1,072,652*l.*—and they state the amount paid within the same time, in wages to British miners, and to their families in England, as 106,587*l.* But, it is notorious, that many families of the miners so employed are left chargeable upon their parishes in England; and that a large proportion of the earnings of such miners is, necessarily, expended in the island of Cuba, for their own support; yielding, therefore, no advantage, by circulation, in their native land. These amounts are estimated to constitute three-fourths of the whole earnings of the miners, or 79,940*l.*; leaving for circulation in England 26,647*l.* To which add, what is further stated to have been paid, at the same time, for coals, machinery, and British manufactures shipped for the mines, amounting to 32,856*l.* And we find a total return, yielding any benefit to this country, by its circulation, of 59,503*l.*, or a fraction more than 5½ per cent. of the entire value of the ores sold.

Now, the whole quantity of foreign copper ores imported into this country, in the nine years from 1838 to 1846, both inclusive (as already shown in my letter of the 9th July, inserted in your paper of the 16th July), was 419,776 tons. And supposing the proportion of wages paid, and materials obtained from this country, for the whole quantity so imported, to be the same as in the foregoing returns from the Cobre Mines, then the advantage derived to this country, from the entire trade in foreign ores, would be that resulting from the circulation of money in those nine years, to the amount of 258,944*l.*

[*To be concluded in next week's Mining Journal.*]

NOTICES TO CORRESPONDENTS.

It will at all times save much trouble, and frequently considerable delay, if communications are simply directed—

TO THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.

Also, to avoid trouble, POST-OFFICE ORDERS should always be made payable to WILLIAM SALMON MANSELL, as acting for the proprietors.

ENGLISH MINES.—It will be observed, that in publishing our usual Mining Correspondence, we have discontinued authenticating them by attaching the agent's names. We have been compelled to this course through the interference of the Stamp-office authorities, who have intimated their determination to charge all so distinguished as advertisements. In this instance, we cannot help thinking a most erroneous view of the case has been taken, as the name of agents attached to the reports, is merely a guarantee to the public of their authenticity, and genuine character, and a check to the publication of those which are spurious and illusive. We trust they will take the subject again into consideration, when, we feel convinced, they will alter their determination.

"M. E."—A letter, in reply to the advertisement for a situation as Superintendent of Mining Operations on the Continent, in the Journal of the 10th July, is now lying at our office.

"E. W." (Basingstoke).—*Mushet on Iron*, 8vo., 30s.; published by J. Weale, No. 59, High Holborn.

"A Subscriber" (Bishop Auckland).—*Dempsey on Railway Making*, 38s.; *Simms on Levelling, &c.*, 7s. 6d.; *Frome on Surveying*, 12s.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, AUGUST 28, 1847.

In last week's MINING JOURNAL, we again alluded to the fact of a large decrease in price having taken place at Holywell of lead ores, between March and June last, and particularly noticed those from two mines—Logylas and Llanfair. On again referring to the Ticketing Papers of each month, we find that a gradual and general reduction in price took place—in proof of which we need only give the following as a fair sample of the greater number. No produce is given; but we believe there would be but little difference in the average sampling, certainly not to the extent here shown—while, most probably, some of them would have improved. East Logylas fell from 11*l.* 6s. 6d. to 8*l.* 19s.; Frongoch, from 10*l.* 7s. to 8*l.* 9s.; Goginan, from 14*l.* 8s. to 13*l.* 3s. 6d.; Fronfownog from 11*l.* 12s. to 9*l.* 18s.; Maeserwddu, from 11*l.* 8s. 6d. to 10*l.* 3s. 6d.; Cairnsmore, from 10*l.* 9s. to 9*l.* 1s.; and Cwmystwith, from 10*l.* 10s. 6d. to 8*l.* 16s. 6d. These facts speak for themselves; and, although an improvement has taken place since June, it is owing to the competition which has arisen by the ticketings at Aberystwith, and not from any peculiarly liberal offers, emanating spontaneously from the Flintshire smelters. We give, in another column, a communication on this subject from "The Flintshire Lead Smelter," as we are quite anxious that the public should be in full possession of both sides of the question, and judge for themselves. Our correspondent places himself in the very position in which he finds fault with ourselves—viz.: the making assertions, without establishing them by proof.

In our extracts from the Ticketing Papers, we have shown that a great fall did take place in the price at the period we stated it had; and, as for our being misinformed on other points connected with the trade, we can only state, that we have taken every pains to arrive at the truth, and can fully depend on the parties from whom we derived our information—at all events, we have given our correspondent every degree of fair-play, by inserting his letters.

It would be a piece of pure wantonness to say one word of discouragement to the promoters of the West Cornwall Railway. Upon their own showing, and according to their official statement, there is more than enough of that in the actual circumstances of the line. We are free to say that, in our opinion, it is a line of great merit intrinsically, as well as of great importance to the county, as continuing a great railway route through the opulent mining districts below Truro. Of a line so essential to the necessities and accommodation of the county, there is, there can arise, no two opinions as to its expediency. Under such circumstances, no short and stunted alternative is presented, as to whether the undertaking shall be pressed forward, or at once abandoned. It is no question of survivorship—it will live, we cannot doubt, and become a great working line *in posse*; but the question coming to the surface, and asking an immediate solution, is, whether the line should be persevered in under its present management; or, whether the administration of its affairs should be committed to new, to more practised, or to more powerful, hands. The statement submitted at the last meeting of proprietors embodies, among other things, these particulars—that a sum exceeding 45,000*l.* has been received on account of the line; that a sum over 40,000*l.* has been expended in surveying and in Parliamentary expenses, &c.; that a balance of about 6000*l.* is in hand; and that the directors expect to receive a further sum of 20,000*l.* by a sale of shares to Mr. F. MOWATT. The treaty with that gentleman for the transfer of these 5000 shares is but a proposition *in limine*, and may never be completed—and, to our minds, the probability is, that it will not; but, granting the contemplated sum is realized from that quarter, it will make but a sorry capital to conduct with any ease a work requiring so many scores of thousands for its completion. The call made on the shareholders in February last has not been paid up; and, in all human probability, another made, in October next, will be as utterly without an answer. Directors may call railway spirits from the deep, but, like other spirits, they do not appear. In this non-subscribing temper of the subscribers, what hope is there of a vigorous and successful creation of 20 miles of railway in Cornwall. The line has certainly some important elements in its favour. On the credit side of its balance-sheet may be set down—1st, the merits of the line itself, which are undoubtedly great, piercing, as it does, a mining circle as rich in mineralogical deposits as the whole remainder of the county; 2nd, its Act of Parliament, investing it with powers and rights at law; and 3rd, its 25,000*l.* capital, wherewith to break ground, and commence its other initiatory works. Regarding these qualifications as a whole, it is most clear that many lines have been commenced under far worse auspices; and with this group of happy circumstances on its side, the public will, as we think, expect this line to be proceeded with at once, or that the company merge itself into one having the inclination and the ability to carry on and complete the work.

Having our attention called to the Cornwall railways, we would not altogether pass over the communication of "A Sufferer" by the Plymouth line. We fear he may be one of a somewhat large class, who have been bitten by that sharp-toothed mastiff. However, the meeting held at Truro this week—but of which we have, as yet, no authentic account—may furnish to the dissentient shareholders some better light as to the future prospects of this uncalled-for and extravagant undertaking.

We have been at considerable pains in laying before our readers full statistical details of the mineral resources of France, and the progress making in the working of iron and coal mines, forges, steam navigation, railways, &c., which will be found in another column. From these it will be seen, that notwithstanding she is obliged annually to import large quantities of coal and metals from this country and Belgium, the mining interest in France is making rapid strides. Since 1838, the production of native coal, for instance, has increased above 30 per cent., and the entire consumption nearly 50 per cent.; this may, in a great measure, be accounted for from the increase in steam navigation, and the extended working of blast-furnaces in the production of iron—the manufacture of which has kept pace with the consumption of fuel. Every description of iron and steel has found rapid sale; and the make of cast-iron had increased from 2,360,998 metrical quintals in 1833, to 4,389,710 metrical quintals in 1845; other descriptions had increased in proportion—while in copper and other metals, the production of native ores in the annual amount appears to have been nearly stationary. The great development of the mineral resources of France may be attributed to the School of Mines, established as long since as 1783, which has done much in the training of first-rate geologists and mining engineers; and it is somewhat a reflection on a mining country like Britain, that she has never followed the example set by her nearest continental neighbour. It will be seen that the public inspection of locomotive engines and railway works are entrusted to mining engineers, which speaks volumes in favour of the system of education pursued; which must, under such circumstances, be of the most ample description; and the candidates for public employment, on leaving the school, pass most scrutinizing examinations. With respect to the qualities of the coals and iron ore of France, they are both of an inferior description to those of this country. The old steam-boats, as well as those of the new line from Havre de Grace to New York, are supplied (under contract) with English coal; while scarce any of the iron ore is of a nature to render it fit for the manufacture of steel—of which, in 1845, there was manufactured, of three several kinds, 123,745 met. quintals, principally from imported ores. The entire statement will be found highly interesting, particularly in conjunction with other statistical details of the coal and iron trade of Belgium, which we also continue in the present Number, as showing that, notwithstanding the impolitic and unjust heavy duties on both coal and iron imported, kept up only to support a grievous monopoly—France must still be indebted to foreign countries for the articles of commerce so essential to her welfare, although her mineral productions have so rapidly increased.

The proposal to found in London an institution to promote and consolidate at some settled point the wide-spread mining interests of the kingdom, has already received the favourable judgment of this Journal. And we confess the more we think of the purposed foundation, the higher our opinion rises of its probable utility and advantages. We sincerely hope that mining proprietors, and those who take a leading part in mining operations generally, will give to the infant institution that support and assistance to which its objects and prospective usefulness so fully entitle it. We hope it will be an essential part of the scheme of the institution to keep aloof as much as possible from dipping into the ordinary business of an hotel or a club-house. It should be, as we think, a Royal Exchange in miniature, where adventurers and mining merchants assemble, to purchase or to sell the particular property in which they are interested. It cannot be much too carefully guarded from becoming a place of entertainment, or a set of lounging saloons. A large library, filled with the very best geological and mining literature, and with all works devoted to the elucidation of the practical and mechanical arts—a museum, filled with mineralogical specimens, and drawings of mining utensils—would be important supplementary features in the institution; the primary and principal object of which, however, should be the concentration and union at one ascertained point of the mining, as one great national, interest in the United Kingdom.

PROGRESS OF FRENCH MINING INDUSTRY.

[FROM OUR PARIS CORRESPONDENT.]

All mines in this country are, as your readers are aware, the property of the Government; but are conceded by it to companies, or private individuals, in return for a fixed rent, and a per centage on the proceeds. The number of the concessions, which were worked in the course of the year 1846, was 444—namely: 275 of anthracite, of coal, &c.; 84 of iron ore; 37 of ores of lead, copper, silver, antimony, and manganese; 26 of mineral bitumen, &c.; 22 of rock salt, &c. The rent received by the Government, which is fixed at 10 fr. per square kilometre of the surface, produced, in 1846, 77,113 fr. 26 c.; and the per centage on the produce of the mines, which in no case exceeds 5 per cent., was 370,598 fr. 31 c.—this makes a total of 447,711 fr. 57 c.; to which is to be added $\frac{1}{10}$th for what is called the *décime en sus*—making a grand total of 492,487 fr. 74 c., being 61,619 fr. 22 c. more than the rental and per centage of 1845. The number of men employed in working the mines in 1846 was 35,320.

Examinations of deposits of iron ore, or searches for them, were made in 1846 in the following departments:—Ain, Allier, Ardèche, Aude, Aveyron, Bouches du Rhône, Cantal, Corrèze, Corsica, Côte d'Or, Gard, Jura, Loire, Haute Marne, Meurthe, Morbihan, Moselle, Nord, Puy de Dôme, Haut Rhin, Rhone, Haute Saone, Saone et Loire, Var, Vaucluse, and Yonne. Deposits of copper, lead, silver, gold, tin, zinc, antimony, and manganese, were examined, or sought after, in the departments of the Allier, Basses-Alpes, Hautes-Alpes, Ariège, Aude, Corsica, Dordagne, Gard, Haute Garonne, Herault, Isère, Lot, Lozère, Morbihan, Nord, Puy de Dôme, Bas Rhin, Rhone, and Vosges. Coal, anthracite, &c., were sought for in the departments of the Allier, Ardèche, Aveyron, Gard, Herault, Indre, Loire, Lozère, Maine et Loire, Moselle, Nord, Puy de Dôme, Pyrenées Orientales, Bas Rhin, Haut Rhin, Saone et Loire, Sarthe, Var et Vaucluese. Mineral bitumen was sought after in the Basses-Alpes, the Doubs, and the Var; and rock salt in the Ariège, Aude, Doubs, Haute Saone, Saone et Loire. Some of these researches have, it is said, resulted in important discoveries, and have given rise to numerous demands of concession.

The number of steam-engines (including locomotives) employed on land, in 1845, was 4114, of which 3649 were of French construction; the 4114 represented 50,187-horse power. In 1842, the number of French-built locomotives in France was equal to that of foreign-built ones; in 1843, the former exceeded the latter by 2; in 1844, by 44; in 1845, by 76. The number of steamers in 1845 was 259, exclusive of war steamers.

The importations of cast-iron and coal continue to increase month after month. Last month the quantity of coal imported was 2,642,749 met. quin.; in the corresponding month of last year it was 2,491,859; and in July, 1845, 2,692,797. Of cast-iron the importation last month was 106,279 met. quin.; July, 1846, 90,136; July, 1845, 50,434. The importation of copper last month was 3477 met. quin.; July, 1846, 8060; July, 1845, 9378. Of tin, 369 met. quin. in July last; 1424 in July, 1846; 2688 in July, 1845. Lead, 26,944 met. quin. in July last; 35,963 in July, 1846; 16,503 July, 1845. Of zinc, the importation was 23,787 met. quin. in July, 1847; 8933 in July, 1846; 22,125 in July, 1845.

The newspapers publish a letter from Sweden, which states that the quantity yielded by the mines of that country, in 1846, was 115,105 tons; and the exportation was 109,611 tons—of which 103,108 tons were in bars, and 6471 tons in manufactured articles.

The weekly report from St. Dizier, of the 19th, says:—"The manufacture of *fers laminés* continues to be confined to the *fers en cercles* and the *fers aplatis*, for which, fortunately, there is a fair demand. Some establishments have no iron for dealers in hand; and those that have any sell them off only slowly. The fabrication of *fers battus* is extremely restricted, and hardly one-tenth of what it might be if trade were better. There is no change in the prices. We know of no transactions in white cast-iron, the price of which is 170 fr. at St. Dizier."

The warfare of the St. Etienne newspapers against the *Compagnie Generale de la Loire*, continues to rage as fiercely as ever; but nothing new has resulted from it. One of the agents of the company has thought fit to reply to one of the attacks to which the company has been subjected; and, in doing so, states, that within the last 18 months, it has disbursed not less than 348,939 fr. (nearly 16,000*l*.) for the establishment and maintenance of charitable institutions, schools, &c., for the miners and their children.—*Paris, Wednesday.*

THE GREAT COAL COMPANY OF THE LOIRE.—No. II.

Having demonstrated the legality of its existence, the company proceeds in its "Notes" to show, by an extract from a speech in the Chamber of Deputies, of the late Minister of Public Works, that the basin of the Loire had been parcelled out into such an immense number of concessions as to cause great inconvenience and danger. To use his own words—"This division caused vast inconveniences. The mineral wealth of the basin of the Loire became less day after day—only the surface was worked; the persons holding the concessions were in a hurry to sell and to enjoy; the processes which the arts teach were neglected, in order to work the mineral riches to the very last vein. After having worked the mine, it was totally neglected, though perhaps not exhausted; and, when inundated, immense injury was done." This system was so disastrous to the basin, to the public, and to the holders of the concessions, that measures were taken by the Government and the Legislature to unite several concessions into one concern, and four or five great companies were formed. This, according to the Minister, secured the future welfare of the basin of the Loire—it enabled coal to be extracted cheaper, and it kept up a moderate competition, which was advantageous to the public. If, added the Minister, things had stopped there he should have rejoiced; but he thought that the Company of the Loire had gone too far in absorbing 27 concessions in 61, and 4744 *hectares* in a total of 21,000. To this the company replies, that large concessions were never considered objectionable in France; and it mentions the basins of Littry, Carmeaux, Decize, Aubenas, Bouxviller, Plessis, &c., in all of which concessions *much larger than it now possesses* were made. It also shows that other companies had preceded it in the way of amalgamating several concessions. Thus the Company of Anzin now possesses 7 concessions out of 13, and 26,564 *hectares* out of 49,248 *hectares* conceded—thus the Company of Blanzy has absorbed 8 in 13 concessions; the Grand' Combe, originally 12 concessions, is now only 1; and, to enable the Grand' Combe Company to effect this amalgamation, the Government and the Chamber advanced it money. These facts are certainly very strong in favour of the Loire Company.

The "Notes" of the company then proceed to show that the workings of coal mines should only be carried on as commercial speculations; for that, if the mines be not made to produce more than they cost, they must be abandoned to the risk of inundations, fire, &c., besides producing the ruin of the parties to whom they may belong. In support of this position it makes the following statements:—In the basin of the Loire there are 61 concessions, which were divided into 105 rival workings. For these workings 330 shafts were sunk. Of these shafts 120 were worked, and the remainder are employed to enable water to be taken off, or are left unworked, or are definitively abandoned. If these 105 shafts were all in full activity, they would yield 800 hectolitres per day, or 244,000 hec. per annum, which would make the annual extraction 30,500,000 hec. But the annual consumption is only 16,000,000 hectolitres; this quantity would have to be divided among the 120 shafts, which would make for each 133,000 hectolitres per annum, or 444 per day. Consequently, the 120 shafts would find themselves in an anomalous position, and could only produce on most onerous conditions.

[*To be continued in next week's Mining Journal.*]

IMPROVEMENTS IN WATCHES.—Mr. Summersgill, of Preston, has lately registered under the Copyright Designs Act, a very valuable improvement in lever watches, which consists in so arranging the works, that the chain and fuzee connected with the going barrel, or main-spring box, are entirely dispensed with—motion being imparted to the wheels and pinions direct, which are arranged in such a way that the watch requires winding up only once in eight days.

BRETT & LITTLE'S ELECTRO-TELEGRAPHIC CONVERSER—ITS APPLICATION TO MINING PURPOSES.

In last week's *Mining Journal* we gave an extended notice of this highly-effective, yet simple, application of galvanic electricity to telegraphic purposes on railways; and the patentees have suggested its use for the prevention of accidents in mines and collieries, or for giving notice when they so happen, and obtaining immediate assistance. The idea is exceedingly good, and we know of no purpose to which the principle could be applied with greater advantage. A powerful toned bell, or bells, placed at surface, in connection with a galvanic apparatus of moderate power, so arranged, that the men in every level, shaft, &c., could complete the circuit, would give direct intelligence of any mishap, either from explosions, falls of roofs, sudden irruptions of water, foul air, or any other of the numerous accidents to which miners are subject. There would, we should think, be no occasion for the instruments as constructed for railways; as, by the employment of three or four bells of different tones, a set of audible signals might be arranged, which could be understood by the engineman, or any of the workmen employed at the surface, and which would be quite sufficient for the conveyance of any intelligence from underground which could be required. An apparatus of this description might be fitted up exceedingly economical, as in no case would there be any very great length of wires, as compared with railways; the posts for supporting them would be dispensed with, as the isolating caps might be affixed to the walls of the levels and shafts, and the whole might be made without any regard being had to elegance of form—strength being the principal consideration. To men employed from 100 to 200 fms. deep in the earth, and in some mines even more, such an arrangement would give confidence and consolation, as knowing they could make themselves instantaneously understood to their brethren on *terra firmâ*; and we have no doubt that many mining operations would be simplified and economised by the employment of electro-telegraphs. The attention of the patentees has been long turned to the subject, although they have been hitherto prevented arranging any system, their time having been wholly employed in bringing their railway telegraph to its present state of perfection. Having been so highly successful with this, we have no doubt they would be equally so with any arrangement applicable to mining purposes; and, when they have more effectually turned their experience in galvanic electricity to such purpose, we shall lay before our readers a full description of their plans.

ON THE COMPOSITION OF FIRE-DAMP OF THE NEWCASTLE COAL MINES.

BY PROFESSOR GRAHAM.

Some years ago I examined the gas of these mines, with the same result as Dr. Henry, Davey, and Dr. Turner had previously obtained—namely, that it contains no other combustible ingredient than light carburetted hydrogen. But the analysis of the gas of the coal mines in Germany, subsequently published, showing the presence of other gases, particularly of olefiant gas, has rendered a new examination of the gas of the English mines desirable. The gases were—1. From a seam named the Five-Quarter seam, in the Gateshead Colliery, where the gas is collected as it issues, and used for lighting the mine, —2. The gas of the Hebburn Colliery, which issues from a bore let down into the Benham seam—a seam of coal which is highly charged with gas, and has been the cause of many accidents.—3. Gas from Killingworth Colliery, in the neighbourhood of Jarrow, where the last great explosion occurred. This last gas issues from a fissure in a stratum of sandstone, and has been kept uninterruptedly burning, as the means of lighting the horse road in the mine, for upwards of 10 years, without any sensible diminution in its quantity. The gases were collected personally by my friend, Mr. J. Hutchinson, with every requisite precaution to ensure their purity, to prevent admixture of atmospheric air.

The usual eudiometrical process of firing the gases with oxygen was sufficient to prove that they all consisted of light carburetted hydrogen, with the exception of a few per cent. The results were as follows:—Gateshead gas.—Specific gravity, 0·5802. Carburetted hydrogen, 94·2; nitrogen, 4·5; oxygen, 1·3 :=100·0. The density of such a mixture is, by calculation, 0·5813. Killingworth gas.—Specific gravity, 0·6306. Carburetted hydrogen, 82·5; nitrogen, 16·5; oxygen, 1·0 :=100·0. The theoretical density of this gas, deduced from its composition, is 0·6308. The Hebburn gas was of specific gravity 0·6327.

Seventy-nine measures of the Killingworth gas, mixed with an equal volume of chlorine, left in the dark for 18 hours, and afterwards washed with alkali, were reduced to 75 measures; from which the presence of four measures of olefiant gas might be inferred But in a comparative experiment made at the same time on 25·3 measures of pure gas of the acetates, mixed with an equal volume of chlorine, a contraction occurred of 1·3 measures; that is, in exactly the same proportion as with the fire-damp. It was observed that phosphorus remains strongly luminous in these gases, mixed with a little air, while the addition to them of 1·400th part of olefiant gas, or even a smaller proportion of the volatile hydrocarbon vapours, destroyed this property. Olefiant gas itself, and all the allied hydrocarbons, were thus excluded.

Another property of pure light carburetted hydrogen, observed by myself, enabled me to exclude other combustible gases—namely, that the former gas is capable of entirely resisting the oxidating action of platinum black, and yet permits other gases to be oxidated which are mixed with it, even in the smallest proportion, such as carbonic oxide and hydrogen—the first slowly, and the last very rapidly; air or oxygen gas being, of course, also present in the mixture. Now, platinum black had not the smallest action on a mixture of the gas from the mines with air. No moisture appeared, or sensible contraction, and no trace of carbonic acid could be discovered after a protacted contact of 24 hours; while, with the addition of one per cent. of hydrogen, the first effects were conspicuously evident in three minutes; and, with the same proportion of carbonic oxide, the gas became capable of affecting the lime-water in half-an-hour. These experiments were repeated upon each of the three specimens of fire-damp.

Potassium fused in the fire-damp did not become covered with the green fusible compound of carbonic oxide, nor occasion any contraction. Indeed, however carefully the heat was applied to the potassium by means of an oil bath, a slight permanent expansion always ensued. The same thing occurred in pure gas of the acetates. It appeared that potassium could not be heated above 300° Fah. in pure carburetted hydrogen, without causing a decomposition, and the evolution of free hydrogen gas. The gas was also inodorous, and clearly contained no appreciable quantity of any other combustible gas than light carburetted hydrogen. The only additional matters present were nitrogen and oxygen; the specimen collected in the most favourable circumstances for the exclusion of atmospheric air—namely, that from the Bensham seam—still containing 0·6 per cent. of oxygen. The gases also contained no carbonic acid.

It is worthy of observation, that nothing oxidable at the temperature of the air is found in a volatile state associated with the perfect coal of the Newcastle beds. The remarkable absence of oxidability in light carburetted hydrogen appears to have preserved that alone of all the combustible gases originally evolved in the formation of coal, and which are still found accompanying the imperfect lignite coal of Germany, of which the gas has been examined. This fact is of geological interest, as it proves that an almost indefinitely protracted oxidating action of the air must be taken into account in the formation of coal; air finding a gradual access through the thickest beds of super-imposed strata, whether these strata be in a dry state or humid.

In regard to measures for preventing the explosion of the gas in coal mines, and of mitigating the effects of such accidents, I confine myself to two suggestions. The first has reference to the length of time which the fire-damp, from its lightness, continues near the roof, without mixing uniformly with the air circulating through the workings. It was found that a glass jar, of 6 inches in length and one in diameter, filled with fire-damp, and left open with its mouth downwards, continued to retain an explosive mixture for 20 minutes. Now, it is very desirable that the fire-damp should be mingled as soon as possible with the whole circulating stream of air, as beyond a certain degree of dilution it ceases to be explosive. Mr. Buddle has stated, "that immediately to the leeward of a blower, though for a considerable way the current may be highly explosive, it often happens that, after it has travelled a greater distance in the air course, it becomes perfectly blended and mixed with the air, so that we can go into it with candles; hence, before we had the use of the Davy lamp, we intentionally made long runs, for the purpose of mixing the air." It is recommended that means be taken to promote an early intermixture of the fire-damp and air; the smallest force is sufficient for this purpose; as a downward velocity of a few inches in the second will bring the light gas from the roof to the floor. The circulating stream might be agitated most easily by a light portable wheel, with vanes, turned by a boy, and so placed as to impel the air in the direction of the ventilation, and not to impede the draught. The gas at the roof undoubtedly often acts as an explosive train, conveying the combustion to a great distance through the mine, while its continuity would be broken by such mixing, and an explosion, when it occurred, be confined within narrow limits.

Secondly—no effective means exist for succouring the miners after the occurrence of an explosion, although a large proportion of the deaths is not occasioned by fire, or injuries from the force of the explosion, but from suffocation from the after-damp, or carbonic acid gas, which diffuses itself afterwards through all parts of the mine. It is suggested, that a cast-iron pipe, from 8 to 12 inches in diameter, be permanently fixed in every shaft, with blowing apparatus above, by which air could be thrown down, and the shaft itself immediately ventilated after the occurrence of an explosion. It is also desirable that, by means of fixed or flexible tubes, this auxiliary circulation should be further extended, and carried as far as practicable into the workings.—*Transactions of the Chemical Society.*

INDURATED AND IMPERVIOUS STONE COMPANY.—We have seen the prospectus of a company under the above title, formed for carrying out several patent inventions for indurating stones of all descriptions naturally soft, and rendering them as compact as polished marble, quite impervious to air and water, and not effected by heat or frost; the introduction of a cement of similar qualities; a process for hardening plaster of Paris, and rendering it compact for purposes of decoration, and giving it various colours; and, also, simple hand machinery for sawing, ripping, rubbing, and polishing all kinds of stone, marble, and granite. These are the several operations which the company propose to undertake; and, although in the absence of any specimens of the work, it would be premature in us to give an opinion on the merits, we may just observe, that there is in England a wide field for the carrying out such inventions, provided they are perfect in their results and economical. Many of the softer kinds of stone found in this country in vast abundance, and which are comparatively useless, would thus be rendered available, and with a fair return to the shareholders. We are promised the sight of some specimens in a few days, and shall return to the subject in our next. The capital is to be 300,000*l*., in 30,000 shares, of 10*l*. each—the calls not to exceed 10*s*. per share; but the prospectus states, that the promoters calculate that not more than one-half the amount will be required.

Original Correspondence.

ON THE SALE OF FOREIGN COPPER ORES AT LIVERPOOL.

SIR,—As a supplement to your article in last week's Journal, relative to the importation and sale of foreign copper ores at this port, I beg to hand you the prices at which a cargo, ex *Conrad*, from Valparaiso, has just been sold to Messrs. John Bibby and Sons, and to the British and Foreign Copper Company; and I quite agree with you, that the South Australian shippers of copper ore, would do well to avail themselves of the advantages which Liverpool offers, in respect of facility of shipping at the lowest rate of freights.—Per *Conrad*—85 tons, 42*l*. 16*s*. 5*d*. per ton; 85 tons, 17*l*. 3*s*. 2*d*.; 97 tons, 37*l*. 10*s*. 1*d*.; and 87 tons, 37*l*. 8*s*.

Liverpool, Aug. 26. MERCATOR.

THE LEAD TRADE.

SIR,—Although newspaper controversy is foreign both to my habits and taste, yet, having taken upon me in a former letter to deny certain statements which you had made, and which you again assert in substance, I must crave a portion of your space to recapitulate the points, and leave your readers to judge on which side the truth rests. You stated that it is, and has been, the custom, from time immemorial, to sell lead ores at Holywell by private contract; and that, by such "hole-and-corner" proceedings, the smelters got the ores at prices unfair to the producers—to which I replied, that, for 20 years at least, lead ore had been sold at Holywell by public ticket. Finding this position untenable, you endeavour to shelter yourself under the assertion, that nothing like competition exists; but, on examination, we shall find this assertion as unfounded as the original one. The ores are sold to the highest bidder; and the quantity sold being very much less than the quantity required by the smelters, it follows, that the very utmost value is given for them—for which of the smelters would go to Cornwall, to Ireland, or to South Wales for ore, when he could buy it cheaper at his own door? Surely, he would leave it to his neighbour to do that; and, further, if ores are selling cheaper at Holywell than in Cornwall, or South Wales, why do not the smelters in those districts come and buy them?

Your next assertion was, that some ores had fallen 20 per cent. in the last three months, which I also denied—and the truth of which you have failed to establish, though your prompter comes to your assistance with his selections from the ticketing papers. But though I denied, that *any* ores had fallen 20 *per cent.*, yet I stated, that a considerable fall existed during the monetary crisis; but that previous rates were again nearly established. I added, also, that whatever depression existed in the price of lead ore in this district, "existed equally in the vaunted ticketings of Cornwall;" and, although you deny this assertion, I am prepared to prove it by the ticketing papers both of Cornwall and Devon.

You then proceed to say—"There has been, and is, a sad want of vigour in the lead ore trade in North Wales." Now, this may apply, perhaps, to the sellers, rather than to the buyers; but, as doubtless you meant it to apply to the latter, I beg leave to question the truth of it; for in what other district of the world do you find lead smelters to be at the same time manufacturers of sheet lead, lead pipes, lead shot, red and white lead, litharge, and paint? Nor is it a proof of want of vigour, that the smelters of this district purchase not only all the ore which is raised in it, and imported into it, but they are also large purchasers of ore in other districts—to wit: in South Wales, Cornwall, Devon, Ireland, and the Isle of Man—and that notwithstanding there are smelting-works in some of those districts very near to the mines—and one of which, if I mistake not, was purchased for the very pupose of insuring high prices for the ores.

Then, as to your other assertion, "that more smelting-houses are wanted," it is on a par with the rest; for there are in this district two or three smelting-works idle, and allowed to remain so, because their owners, though possessed of capital and skill, found them unprofitable. It is clear, Sir, that you have been imposed upon, either by idle gossipers, who know nothing about the matter, or, what is worse, by somebody who, knowing the truth, has perverted it, to cover some purpose of his own; but, be this as it may, I conclude this letter with the same assertion that I made in my last—viz.: "That in no district in this kingdom, is so great a price given for lead ore, in proportion to the absolute value of its marketable produce, as in this villified district of Holywell."—A FLINTSHIRE LEAD SMELTER.

Aug. 24.

IMPROVEMENTS IN RAILWAY CHAIRS.

SIR,—Having lately made some little alteration in my railway chairs, within the compass of the patent, the description given by you in the *Mining Journal* slightly differs from the plan I now adopt, though the principle remains the same. I have dispensed with the oblong aperture in the chair, and the bolt at the end of the rail (although that plan may be adopted, if preferred—in which case I would suggest that the bolt should be a fixture on the chair, and the end of the rail notched out to admit the bolt). I have substituted a jointed, or notched, rail, that overlaps at the ends, which I prefer, as I consider the more simple the improvement the more valuable it is for practical purposes. The objection I contend to exist, as to the present chairs, is, the great distance between the bearing points of the chairs, by which the rail, from the pressure and weight of the engines and trains, acquires a considerable degree of deflection, and the constant bending and springing of the rail causes it to become loose in the chair, and finally starts up at the ends, or points, of junction, which always will be the case, without the rails are made considerably heavier, commensurate with the weight of the trains. This defect is remedied in the improved chair, by giving the rail a longer support over it, which will be obvious on inspection. The sleeper chair is 10 in. across, which gives the rail that length of bearing; and the block chair, being 22 in., affords it that additional support. The distance, therefore, between the bearing points of the chairs is greatly contracted, and by which the rail cannot acquire so much deflection, and is, therefore, more firm and steady. The points, or ends, of the rail are made to overlap—by which means, when once keyed into the chair, they can neither draw asunder, nor start up at the points of junction: it is from this cause so many accidents have occurred; but the celerity with which rails are replaced, when an accident happens, conceals the real cause of it—on inspecting the rail all appears perfect, and the cause of the accident becomes a mere matter of conjecture; this will never be avoided until a regulation is made, that the rails, carriages, &c., shall remain in the same state they are found after an accident, until the rail is inspected by the Government engineer. It will be found that these block chairs are much more economical than either stone blocks or sleepers; their durability would be a great saving, and the original cost is not more than that of the stone block and chair; they are more readily and speedily laid down on the line, and with much greater exactness. It will, at no distant day, be found that metal is the most preferable material, and will ultimately altogether supersede every other, wherever it can be used. To render the superiority of metal more apparent, it is only necessary to show the expense of laying down and maintaining railways on the present system. Stone blocks, even where stone abounds, taking together the cost of the stone, quarrying and holing the block, with the metal chair and new nails, are as costly as the metal block, which comes ready made for use from the founders' hands. Where stone is scarce, the cost is much enhanced. The next expense attending stone blocks, is their constant breakage from the rebound of the trains, besides the breakage occasioned in the process of driving in the trenails to secure the chair. I believe it is undeniable, that on every mile of line where stone blocks are used, not less than 10 stone blocks break and have to be replaced weekly. This cannot occur with metal blocks. Add to this, a vast number of plate layers are employed on the line, to renew the stone blocks which give way, and to keep the rail in perfect order and repair. For every mile and a half of line, not less than three men are required—this adds much to the expense of keeping it up; not one-half the number would be needed, if the materials of construction were more durable, as would be metal. trenails

Wooden sleepers are becoming more generally substituted for stone blocks, but they are also perishable, and require frequent renewal, besides being more expensive than metal; timber, from its extensive use, will become a very costly item in railway formation. Both stone and timber, when taken up to be replaced, are valueless—not so metal, which must always bear a proportional marketable value; there is, therefore, every inducement to prefer metal to any other material in making railways, and the increased demand for this staple article of commerce must give an important impetus to trade, and, consequently, bear beneficially on the traffic returns of lines. Chairs and rails, constructed on the principle that I have suggested, will be found the most economical from their durability and strength, and be less liable to breakage and accident; they may be made of any weight or pattern; and, from the support given to the rail, admit of rails of less weight being used.—S. REED: *Newcastle, August* 25.

ATMOSPHERIC RAILWAYS FOR INDIA—REASONS OF THE FAILURE OF THE CROYDON ATMOSPHERIC LINE.

SIR,—Early in the spring of 1846, this "singularly ingenious and highly-meritorious invention," for public conveyance, opened with some *éclat* on the Croydon line; but, alas! its success was of short duration—a circumstance any mechanical man might have foreseen, who was acquainted with pneumatic machinery. The only part which excites surprise is, how it should have succeeded so well on the experimental trials, and, after 12 months' use for public conveyance, become a thing of the greatest uncertainty. When it was first put in operation, and for some time after, the air-pump valves, the tube, and its valve, were clean; and while they remained so, and the temperature of the weather suited the composition, which was used to keep the valve of the tube perfect, the principle worked admirably. But, in hot weather, portions of the composition on the valve were melted, and forced into the tube by the pressure of the atmosphere; then the air rushed in also, and, on some occasions, to an extent which reduced the speed of the trains to five miles an hour. To men in business, travelling by the line, this was insupportable, and it was accompanied with the additional evil of clogging up the tube, to the serious obstruction of the piston. These defects had a considerable share in the downfall of the Croydon atmospheric line, and would not fail in producing a similar fate on any other atmospheric line where they exist, if punctuality in performances be essential.

The tube, too, was of cast-iron, and rough as a water pipe, cast in lengths of 10 or 12 feet each, and joined together in a very questionable way to be permanently air-tight; and the joints were very open inside of the tube, forming a bad surface for the piston to travel over. When the piston passed those defects in the tube, leakage to a certain extent took place, from the air which was propelling the piston being capable of a velocity 20 times greater than the piston was travelling at, supposing that speed to have been 30 miles an hour. At that velocity (30 miles an hour), 220 joints would be passed over by the piston per minute. Supposing, then, the joints, on an average, to have been ¼ of an inch apart (and they were not less on the Croydon line), they jointly formed a space equal to 4 feet 7 inches in length, for the air to rush past the piston with perfect freedom once every minute during its progress through the tube. Mr. Robert Stephenson, in his report of experiments on the Kingstown Atmospheric Railway, mentions the fact of a heavy leakage when the piston was in motion, and attributes it to the inequalities of the internal surface of the tube. Mr. Stephenson states the loss of motive power from this source alone to be 41 per cent; and when the apparatus was tested with the piston at rest, a further loss of 30 per cent. was going on by leakage through other channels—making a total of 71 per cent. of the whole motive power employed to work the line; and the defunct Croydon line, be it remembered, was of similar construction.

It will be readily perceived, that the 71 per cent. loss arose from defects in the mechanical construction of the tube and valves, and had nothing to do with the principle of this "meritorious invention." But there was another loss, which also seriously affected the economy of the system, by making the tubes only 15 inches diameter. To exemplify this error, I shall suppose a tube having a barometer fixed to it, and perfectly air-tight. If the air within the tube be at the density of the atmosphere, the barometer would stand at the usual height of 30 inches. Let one-half of the air contained in the tube be withdrawn by an air-pump, and the barometer would immediately fall to 15 inches in height, and the tube, all over its external surface, would sustain a pressure of 7·5 lbs. on the square inch. Again, let the process be repeated, and the barometer will fall from 15 in. to 7·5 in. in height, and the pressure per square inch upon the tube will only be augmented by 3·75 lbs., in place of 7·5 lbs., as in the former instance. In both cases, the motive power producing those pressures is the same. This fact clearly demonstrates the advantage of using large tubes for atmospheric railways. A tube 15 in. diameter, and rarefied to 8 lbs. on the square inch, only produces a pressure of 1414 lbs. upon the surface of the tube piston; whereas, a tube 22 in. diameter, with the air rarefied to the same degree, gives 3040 lbs. pressure upon the surface of its piston. The former power only propels a train of 47 tons at 35 miles an hour, and the latter a train of 101 tons at the same velocity. Should circumstances require the small tube to be rarefied to the degree mentioned—that is, 7·5 lbs. + 3·75 lbs.—a further loss of power will be incurred, to the extent of 25 per cent., which, if added to the former, gives an aggregate of 96 per cent. loss. This immense waste of motive power occasions the necessity of having stationary engines closer together, and much more powerful than would be requisite with a perfect apparatus. With these facts before us, it is most unjust to hold a genuine mechanical principle condemned, as is nearly the case at present with atmospheric railways.

It has been very generally supposed that atmospheric railways were invented by Messrs. Samuda, but this is a mistake; the real inventor of this almost magic mode of public conveyance was a Mr. George Medhurst, who, in 1827, published a pamphlet, with diagrams, showing the manner in which the principle might be applied to propel carriages upon a railway; the pamphlet is to be seen at the Polytechnic Institution. I have been informed, the inventor died before seeing any public trial of his invention; and, as is too often the case, the poorer for the discovery he had made.

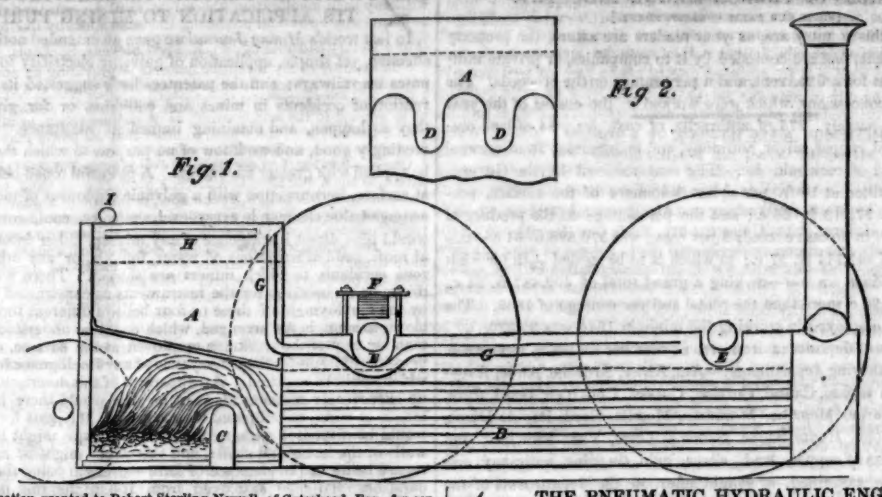
Before it is too late, I would seriously recommend to public companies, about establishing railways in India, a closer investigation into the merits of this system of public conveyance, and to dismiss from their minds the stigma which has been thrown upon it in this country. India is a new field, offering many facilities for the introduction of perfect atmospheric railways; there the teak is to be had in abundance, a wood admirably adapted for making both the tubes and the rails. By using it in place of iron for those purposes, and with tubes 22 in. diameter, the saving would be immense, not less than 3500*l.* per mile on a single line; and a perfection in the construction of the tubes would be obtained throughout their whole lengths, equal to the internal surface of a steam-engine cylinder. The mode, too, of connecting trains with pistons, travelling in tubes of this description, is entirely new, simple, and perfectly air-tight; in every respect well adapted to an Indian climate, and I trust, without presumption, deserving the attention of any company anxious to establish a cheap, safe, and highly expeditious mode of public conveyance in that country.

Walcot-place, Kennington-road, Aug. 25. JAMES WHITE, C.E.

CONNECTION OF ENGLAND WITH FRANCE BY RAILWAY.

SIR,—In the *Mining Journal* of the 7th inst., I observe a communication from Mr. De la Haye, in reply to one from me in a previous Number, on the absurdity of his scheme for joining the two countries by an iron tunnel across the Channel. In this letter, Mr. De la Haye accuses me of ignorance, of not being a scientific man, and of not reading the *Mining Journal* attentively. I will not attempt to follow your correspondent through his lengthy epistle, but will endeavour to show that his plan could never be carried out; and I would just observe that, proposing schemes a century or two in advance of the age, is no more proof of scientific knowledge, than the conduct of him who is as much behind. Mr. De la Haye may write up the feasibility of his plan, and cite precedents where men of foresight and talent have been ridiculed for proposing grand projects, for the advancement of human nature, which have since been fully carried out; but I think he will find few proselytes to his system. Even allowing that the Channel was perfectly level from Dover to Calais, there would be continuous accidents and delays in floating out and sinking the sections of tubes, and which never could be properly secured; but when, on reference to the soundings, we learn that there are continual alternation of hills and holes to the amount of many fathoms, I shall be obliged to Mr. De la Haye if he will inform me, how he intends to surmount this difficulty; or whether he intends to follow the various inclinations of the strata, which is, of course, chalk, covered to a greater or less depth with pebbles, shingle, &c.? Another difficulty which suggests itself to me is, the arrangement for the entrance at each end; either he must excavate to a depth equal to the lowest level of the Channel's bed, or he must have his tunnel on a most severe incline from both ends towards the centre. I readily acknowledge, that his proposed arrangement for ventilation is ingenious; but, like the tunnel itself, would be found much easier to talk or write about than to carry into effect. The Cherbourg breakwater, and the granite rocks of Guernsey, are not cases in point; and while I can see the great public convenience which would accrue by the adoption of his plan, under rivers where bridges would be impracticable, to the extent of a mile, or perhaps two, at the utmost, I cannot be persuaded that there is no limit beyond which human science never can penetrate; for, if such is the case, Mr. De la Haye would be justified in making it appear possible to construct a railway to the moon! I can assure your correspondent that I have ever admired bold and original undertakings; but I believe it will be acknowledged, that extravagant proposals are no proof of science—or pretending to be in advance of the rest of the community, the best way to be considered a benefactor to society.—Q.: *Tonbridge, Aug.* 26.

NEWALL'S IMPROVED LOCOMOTIVE ENGINE.



[Abstract of specification granted to Robert Sterling Newall, of Gateshead, Esq., for certain improvements in locomotive engines.—Patent dated 16th February, 1847.]

These improvements, which are arranged in the enrolled specification under four distinct heads, are as follows:—The first part has reference to the arrangement of the fire-box and tubular part of the boilers of locomotive engines. It consists in so arranging the fire-box, that the level of the water above the fire shall be considerably higher than the level of the water in the tubular part of the boiler, by which the amount of evaporating surface is increased to about *seven* times that of the tubular part of the boiler; and the tubes, instead of being fixed to the inside plate of the fire-box, are fixed to the outside plate, by which the water in each is kept entirely distinct, as exhibited by the drawing, where A marks the fire-box, B the tubular part of the boiler, C the bridge, situate about *eighteen* inches from the ends of the tubes. The inventor claims this arrangement as his invention.

The second part of these improvements has reference to the arrangement of the fire-box with three arches, which consists in making the fire-box, against which the fire impinges with an undulating (as at *Fig.* 2), instead of a level, surface (as at *Fig.* 1), by which the amount of evaporating surface is considerably increased. The piers, or hollow columns, D, upon which the said arches are formed, are placed crosswise of the width of the fire-box, as shown at *Fig.* 2, and the under surfaces of each is inclined in an opposite direction; the inventor does not limit himself to the number of these arches, and claims this arrangement as his invention.

The third part of these improvements consists in combining the boiler, shown at *Fig.* 1, whether with three arches, more or less, with two pairs of driving-wheels coupled together—such wheels being mounted upon axles, which extend across recesses formed in the upper side of the tubular part of the boiler, as exhibited at E, E (*Fig.* 1); there are trailing-wheels for supporting the weight of the fire-box, and the weight-springs are disposed in the direction of the length of the axles, as shown at F, *Fig.* 1. The inventor claims this arrangement as his invention, by which he states that he is enabled to keep the centre of gravity very low, and which he "hopes" will prevent oscillation.

The fourth part of these improvements consists in a new arrangement of the steam-pipe, by which priming is prevented. At *Fig* 1, G marks a steam-pipe, which is bent at the recessed part of the tubular boiler, from whence it passes through the water in the fire-box, extending in a vertical direction; H marks a steam-pipe, extending in a horizontal direction, and situate near the top of the fire-box, as shown; I, a steam-pipe communicating with the cylinder of the engine, such cylinder being placed on the outside of the fire-box, and at each side thereof the steam-pipes; H and I, as also the upper part of the pipe F, are perforated with an infinite number of small holes, by which priming is prevented. The inventor claims this arrangement of the steam-pipe as his invention.

The inventor further states, that the feed pumps may be worked by a cross-head from the piston-rod, for feeding the tubular and other parts of the boiler formed by the fire-box, each of which must be furnished with gauge-cocks and safety-valves; the eccentrics for actuating the slides and other parts, forming no part of this invention, must be arranged as circumstances may suggest.

Patent Office, 210 Strand, August 24.

RAILWAY CLUB.—A meeting of engineers, surveyors, railway solicitors, &c., was held at the King's Arms Hotel, Bridge-street, Westminster, on Wednesday evening last,—Mr. J. VALENTINE, C.E., in the chair—for the purpose of taking into consideration the formation of a railway club, when it was resolved—"That the growing extent of railway enterprise, and the consequent increase in the number of gentlemen engaged in the profession of civil engineers, surveyors, architects, railway solicitors, parliamentary agents, and their assistants, not only resident, but who are occasionally located in London, renders the establishment of a club absolutely necessary, which shall extend to those parties the benefits usually derived from such institutions: contemplating the ultimate establishment of a library, museum, and model room, and forming a centre for this now numerous and most important class of individuals." A provisional committee, consisting of Messrs. Oram, Jesson, and E.W. Gooch, civil engineers, was appointed to draw up the necessary rules, and otherwise carry the foregoing resolution into effect. It is proposed to establish the club in the nearest convenient vicinity to the Houses of Parliament, where lectures will be occasionally given, and *conversaziones* held, whereby the members may acquire greater proficiency in their respective avocations, and where, in the words of the prospectus, "their leisure hours, in the place of idle recreation, may be employed in embracing the facilities thus afforded for increased mental cultivation."

EAST INDIAN RAILWAY.—It has been determined, after mature consideration by the directors in London, that the executive management in India, of the affairs of the East Indian Railway Company, be vested in a board consisting of a chairman and two other gentlemen, whose experience in the railways of this country has qualified them for such employment. The members of this board are Mr. Macdonald Stephenson, the managing director of the company, who is appointed chairman; Mr. A. Adams, and Mr. A. Beeston—all of whom proceed to Calcutta by the steamer of the 20th of September, with the executive engineers and others who are engaged for the company. The names of those gentlemen whose passages are already taken, are Mr E. M. Daniel, the assistant secretary; Mr. S. C. Brees, Mr. C. Brumell, Mr. M. Edwards, Mr. Ure, Mr. Jenkinson, and Mr. Slater, upon the engineering establishment.

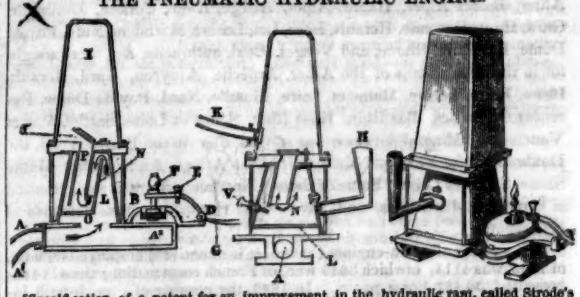
BRITISH INDIA.—British dominion in India may now be said to comprise a territory fluctuating between, if it cannot be admitted virtually to comprehend, an expanse of surface varying from 553,000 to 1,280,000 square miles; with a population alternating between the extremes of 83,000,000 and 134,000,000 of human souls. Surrounded by the extensive and fertile countries of China, Burmah, Siam, Persia, Arabia, and the Eastern Archipelago, it may be described as comprising some of the richest and most sumptuous portions of the globe, terminated by a sea coast of 1500 miles, indented with various harbours, and an interior intersected by the magnificent streams of the Ganges, the Brahmapootra, and the Indus. In climate, it is classed by the latest authorities as falling under three general divisions—viz.: the Himmalaya, the belt of the flat country extending from the Indus to the Brahmapootra, and Peninsular India. In short, reaching, as our Asiatic possessions do, from within 6° of the equinoctial line to the 35° of northern latitude, it may be easily perceived to possess a range from the temperature of the torrid zone to the region of perpetual snow. The agricultural wealth of such a realm is, of course, of the grandest to be conceived, comprehending all the demands of the vastest commerce that could be prosecuted. Yet what is the reason that such rich and profuse elements have not attained their rank in the markets of the world? How is it that we import cotton from America; wheat from various quarters of the globe; tallow, flax, hemp from Russia; that we squabble about sugar from Brazil—when India is the natural storehouse of the empire for every raw product to be yielded by the bounteousness of nature? The trade of India with the whole world has been estimated at about 30,000,000*l.* sterling annually. It may well be hoped to be only in its infancy; it is, however, delightful to reflect upon the impetus which must naturally be given to it by the increase of her steam power, and the introduction of railroads.—*Asiatic Journal.*

GROWTH OF A RAILWAY.—The York and North Midland Railway Company started into being some 12 years ago, with a scheme for a little line of about 23 miles long, running from Leeds to York. Now the company possesses about 187 in work, 68 more to be opened during the next half-year, and powers to construct 65 miles more not yet commenced—in all 310; so that in a little more than a dozen years it will have increased more than 13 times its length. Its original name might have been the Infant Hercules.

A wire suspension bridge is now erecting over the Ohio, which will be the largest structure of the kind in the world, having a span of upwards of 1000 ft., whereas, that of Fribourg is but of 800 ft.

Many Dutch artisans have been engaged to proceed to Russia, for the purpose of establishing an iron shipbuilding yard, on the banks of the River Volga.

THE PNEUMATIC HYDRAULIC ENGINE.



[Specification of a patent for an improvement in the hydraulic ram, called Strode's Pneumatic Hydraulic Engine, granted to Joseph C. Strode, of East Bradford township, Chester county, state of Pennsylvania, March 27, 1847.]

The nature of my invention and improvement consists in making use of a column of condensed air between the propelling fluid and the fluid that is to be raised; said air being condensed in a pyramidal-shaped chamber, by means of the momentum of a descending column of water; said chamber having a communication, by a small opening at its top, with another chamber, into which the spring water or fluid, to be raised, is introduced, called the spring water chamber, and upon which the condensed air in the first-named chamber is made to act, causing said fluid to rise through a tube placed in the spring water chamber (open at its lower end, and closed alternately at its upper end, by means of a valve), into a large air vessel, or receiver, of the usual form and construction, being conducted thence to its place of destination by pipes, or hose, in the usual manner.

Fig 1 is a longitudinal section; fig. 2 is a transverse section; fig. 3 is a perspective view. Similar letters in the several figures refer to corresponding parts.

A is the main pipe for conducting the propelling water from the head, or reservoir, to the pyramidal air chamber. This pipe descends below the level of that portion of it which connects with the air chamber just before it reaches the said chamber, and then ascends, in a curved line to it, forming a curved bend in the pipe, as at A, for the purpose of preventing the air received at the valve B, during the time in which the vacuum is produced in the air and water chamber, as hereafter described, from filling the pipe A, as the air will not descend at said bend in the tube, so that the surplus of said air, after having filled the condensing chamber L, may be carried off, by the current of water, through the valve B. The pipe A is enlarged below the air chamber L, as at A^2, and has an opening O into the inner chamber L, through which the water passes when the valve B is closed. B is a valve attached to a curved, vibrating lever C, turning on gudgeons D, in boxes, as its fulcrum, having a set screw E, for regulating the descent of the valve, and a counter-balance F, for adjusting the valve. When this valve B is down, as shown in fig. 3, the water from the head flows through the opening, which it closes; when it is up, as shown in fig. 1, the water rises into the pyramidal chamber L, through the opening O, and condenses the air therein. H is a pipe for conveying the spring water to the spring water chamber. I is the air chamber into which the water is forced. J is the valve for holding it. K is a pipe, or hose, for conveying the water to its place of destination. The above-named parts, lettered A to K, inclusive, are made and operated in the usual manner. The improvements are as follows:—L is a pyramidal chamber into which air is admitted through the valve B, when it descends by the pressure of the external air, to supply the partial vacuum created in the pipe A, and chambers L and N. This pyramidal chamber has a communication, by a small opening M at the top, with another chamber N, called the spring, or pure water, chamber; through which opening M, the air, so condensed, is forced, and presses on the spring, or other water, introduced into the same through the pipe H, by which pressure, the water in said spring water chamber is forced upward through a tube P, reaching to near the bottom of the said chamber N, through the valve J, into the air chamber I; said valve being represented as open in fig. 1, and as closed in fig. 2. To raise water with this machine, open the valve B, and let the water flow out; then, by closing the valve B, the water, which is now in motion in the pipe A, will pass through the opening O, into the pyramidal condensing chamber L, and condense the air the same as before; the condensed air will force the spring water up the tube P (which had entered through the pipe H during the continuance of the partial vacuum above spoken of), into the chamber I, and condense the air therein, until its density is equal to that in the condensing chambers L and N below; at this time the spring water will cease to flow into the air chamber I, the valve J closes, and the air in the chambers I, L, and N commences expanding, that in the lower chambers L and N, giving motion to the propelling fluid and driving it backward, producing a partial vacuum in the machine, and the air in the upper chamber I, forcing the spring water to its place of destination. The said partial vacuum in the machine, caused by the reaction of the machine, as aforesaid, and the pressure of the external atmosphere on the valve B, will cause it to open again. The water from the head then flows through this valve with an accelerating movement, until it has acquired that degree of velocity as to cause the valve to close. The water having no longer any vent through the valve B, passes through the opening O into the pyramidal air chamber L, and repeats the operation above mentioned successively. In this manner the operation will continue as long as the machine remains in order and there is a head of water to propel it. The valve V is for the purpose of supplying the chamber I with air, by admitting said air into the tube P. The said air is admitted during the time that the partial vacuum above-mentioned takes place. The air thus introduced into the tube P ascends to the top of the same, and is forced into the chamber I at the next stroke of the machine; said valve V is represented open in fig. 2, and may be closed, or regulated, by screwing the thumb-screw V.

The principal advantages this machine possesses over other machines are—

1. In case of forcing up pure water by the propelling power of a running stream of water less pure, there is no possibility of the impure water mixing with the pure, there being at that time a column of condensed air between the two waters.

2. The water being forced into the upper chamber I, by the condensation of air in the lower chamber, the valve J opens more slowly than when water alone is made the propelling medium, and also shuts more slowly, thereby preventing the water from escaping back through the valve J after it is forced up—the valve J being nearly closed when the water ceases to flow upward into the chamber L. This advantage, upon trial, is found to be of considerable importance, enabling the machine, thus operated on, to force, with a given quantity of water, several barrels more of water per day than it would otherwise do.

3. There being no valve between the condensed air in the lower chamber and the driving water, or at the opening O, said air is permitted to act a longer time in forcing back said driving water, and thereby making a more complete vacuum than in other machines, and rendering useless the spring for opening the outlet valve B, as used in several machines.

It is not necessary that the spring water chamber N, and the air chamber I, should be enclosed by the same envelope, but they may form separate chambers, and they may be arranged in any convenient way or manner most acceptable to the constructor, provided that the capacity of the air chamber does not exceed a due ratio between the propelling power and the water to be raised.

I wish it to be understood that in the construction of these machines, I do not wish to confine myself to the form of a hollow frustrum of a pyramid, cone, or other form, for the several chambers, &c.; but I desire the privilege to vary these as I may think proper, in form, proportion, and material; provided, in all cases, that the surplus air be carried off through the valve B. I, however, prefer the forms above described when pure water is to be raised with impure

water. What I claim as my invention, and desire to secure by letters patent, is—

1. Making use of a column of condensed air between the propelling fluid and the fluid to be raised, in the manner above described, or other mode substantially the same, by which analogous results are effected.

2. I claim the particular combination of the pyramidal air chamber L, the internal spring water chamber N, and the water tube P, with the curved conducting pipe A, and valve B, and the air chamber I, and hinged valve J, constructed and arranged in manner and for the purpose substantially as set forth.

RECENT AMERICAN PATENTS.

[From the *Journal of the Franklin Institute.*]

DRESSING GOLD AND SILVER ORES.

For an Improved Apparatus for Washing and Amalgamating Gold and Silver: D. Asbury, Coburus P. O., Union County, North Carolina; May 2.

"By the ordinary and common processes for the separation of gold and silver from their ores, by washing with water and amalgamation with mercury, there has always been a loss of both gold and silver, as well as of the mercury. In the hand-rocker, and long semi-circular trough, usually worked by hand, the quantity of sand and gravel which these machines can work is small; consequently, when that contains but little gold or platinum, it cannot be worked with profit; and in these machines there is a great loss of both gold and platinum, as well as quicksilver (when that is used), because the motion is half the time in one direction, and half the time in the other, by which the gold, &c., is prevented from subsiding, and, consequently, passes off with the water and sand. In the Burke rocker, there is a still greater waste of quicksilver and the precious metals. In the Tyrolese bowls, the sand and gravel subside too soon to the bottom, and prevent the contact of the gold and silver with the quicksilver. My machine, I believe, will obviate all these practical evils, which heretofore have attended the extraction of the precious metals from their ores, or earthy and stony mixtures; these objects I effect in the following way:—The moving frame, which supports the pans, is hung to two cranks, on two shafts, one at each end, by the rotation of which the required shaking motion, such as would be given by hand, is obtained."

Claim.—"Having thus fully described my improved apparatus, what I claim as my invention, and desire to secure by letters patent, is the moving frame supporting one or more pans, and moved by cranks, or other analogous device, causing them to be shaken, in the manner and for the purpose above set forth."

THE MANUFACTURE OF IRON.

For an Improvement in Reverberatory Furnaces for Smelting Iron: A. Ellicott and J. McCrove, Baltimore, Maryland; May 16.

This is for an improvement in furnaces for reducing iron ores, whose object is to facilitate and economize fuel. Two stacks are placed side by side, with a blast for each, which, as occasion requires, may be diverted in such a manner, that nearly the whole blast may be directed to one of the stacks, while the charge in the other preserves sufficient heat for its stage of the process. It is believed, that extracts from the patent are unnecessary.

Claim.—"Having thus fully described the manner in which we construct our double hot-blast reversing furnace, and shown the design and operation thereof, what we claim therein as new, and desire to secure by letters patent, is the manner, herein made known, of combining two reverberating chambers with a single fire chamber, under an arrangement by which we are enabled, when necessary, to direct the whole of the double blast into either of the reverberating chambers at pleasure, for the purpose set forth. We also claim the particular manner in which we form, arrange, and apply the hollow grate bars, and the trunk, or tube, through which they are supplied with cold air, by which arrangement, all that is necessary to insure their proper action, is simply the dropping them in place, side by side, as herein made known."

For Improvements in the Process for Manufacturing Iron directly from the Ore, and in the Apparatus therefor: J. F. Winslow, Troy, New York; May 16.

"My improved process is applicable to the treatment of oxides of iron only; and this I effect in reverberatory furnaces, although some parts of the process may be applied in furnaces without the reverberatory feature. It has long been essayed to reduce the oxides of iron directly into the metallic state, by heating the ores mixed with carbonaceous matter, with the view to produce deoxidation, and then to transfer the mass thus treated to the puddling process: but in all these, which have so far been unsuccessful, the upper stratum only of the mass of ore and carbon was exposed to the direct action of the heat and flame, instead of the whole mass; and, to avoid this evil, it has been suggested to apply heat to the mass of ore and carbon below, as well as above, by placing the fire-grate directly under the furnace hearth, or floor, and then reverberating the flame, and passing it over the charge. This modification, while it removes the leading objection of the process above indicated, introduces practical difficulties of such magnitude as to defeat the contemplated object. My improvements effectually avoid these difficulties, and consist in exposing the mass of pulverized ore, mixed with carbonaceous matter, to the combined action of a gentle flame, or heat; and currents of heated air, passing through the mass, which, in their passage, not only agitate the mass to aid the mechanical liberation of the gases evolved, but aid in evolving the gases from the oxide and carbon, which, in their nascent state, combine and revive the metallic particles. The mass is then subjected to the combined action of a more intense flame, and to highly heated currents of carburetted hydrogen gas, that pass through the mass, and take up the remaining oxygen of the ore, and revive the metallic particles; and then the mass passes to the puddling process, where it is subjected to a still more intense heat, and to the action of jets of highly heated atmospheric air, to consume the carbonaceous matter, and free it from otheir impurities. For the application of my improved process, I have made important modifications in the well-known reverberatory furnace, which, for this purpose, is made of much greater length than those heretofore used."

Claim.—"What I claim as my invention in the process of making malleable iron directly from the ore, is the passage of heated atmospheric air through the mass of ore and carbonaceous matter in the process of deoxidising, as herein described. I claim also the passage of hydrogen, or carburetted hydrogen gas, through the mass, in the process of deoxidizing iron ore, substantially as described, whether this be done after the ore has been partly deoxidized by the previous part of the process, or not. And I also claim treating the mass in the puddling chamber with a blast of highly heated atmospheric air, to consume the carbonaceous matter, substantially as herein described. And, in the furnace above described, I claim, as my invention, making the plate, or bed, on which the ore is placed for deoxidizing, with numerous perforations, for the introduction and passage of highly heated atmospheric air, or other gases, through the mass, for the purpose and in the manner described. I also claim this perforated plate, or bed, as described, in combination with the puddling chamber, as described."

For an Improvement in the Apparatus for Feeding Furnaces for Smelting: Squire M. Fales, Baltimore, Maryland; May 16.

Claim.—"I do not claim as my invention, feeding furnaces through a feeding tunnel simply, as this has been done; but what I do claim as my invention, and desire to secure by letters patent, is the combination of the tube and piston, for forcing in the coal, &c., in combination with the feeding tunnel and furnace, as described, whether the furnace be for smelting or for other purposes, as described."

THE STEAM-ENGINE.

For Improvements in Locomotive Engines: M. W. Baldwin, Philadelphia, Pennsylvania, May 16.

Claim.—"What I claim as new, in the last described arrangement, is the connecting of the rods which are used as constituting a part of the frame of a six or eight wheeled locomotive, as described and represented; and also the connecting rods which embrace the crank pins upon the wheel, by forming a spherical segmental shell on one end of said rods, and attaching them together, in the manner set forth, so that such rods shall not only have perfect freedom of motion, but shall also stand in a line with, or directly behind, each other, at their junction. I do not intend to make any claim, under either of the foregoing heads, to either of the parts of the respective devices claimed when taken individually, but I restrict the said claims to the respective combinations described; not intending, however, by this disclaimer, to limit myself to the precise form of the respective parts, but to vary these as I may think proper, whilst I adhere substantially to the principle or manner of arrangement fully made known."

For an Improvement in the Balance-Valves of Steam Engines: W. H. Baker and H. R. Worthington, Brooklyn, New York; May 28.

"In constructing our balance slide valve, we so arrange the respective parts thereof, as to cause the steam to operate equally on opposite sides of the sliding part thereof, allowing the steam to enter into, and escape from, the cylinder equally on each side of said valve. In effecting this, we sometimes cause the valve to slide between two stationary check-pieces, in each of which are contained three openings, operating in the ordinary way for the induction and eduction of steam. Instead of the two stationary check-pieces above-named, we sometimes employ one stationary valve seat, which is embraced on each of its sides by the slide valve, the stationary valve seat being furnished with three steam openings on each of its sides, so arranged as to produce the same result with that first named, and in a manner substantially the same; the two modes being mere modifications of one principle."

Claim.—"Having thus fully described the nature of our improvements in the manner of constructing a balanced slide valve for steam-engines, what we claim as new therein, and desire to secure by letters patent, is the causing the steam to operate equally on and through its two opposite sides, under an arrangement of the respective parts, such as herein set forth; that is to say, by the employment of check-pieces, between which the valve may slide, or of an elevated block, on each side of which the sliding valve is to operate, together with any such modification thereof as shall be substantially the same in its structure and operation, producing the same effect by like means."

For a Rotary Steam-Engine: R. Field Stevens, St. Louis, Missouri; May 30.

"The nature of my invention consists in providing an aperture, or opening, extending throughout the circumference of a wheel, and communicating with a hollow, or chamber, within, with a flexible hoop, ring, or band, which may be so applied to the said opening, as to confine steam, or other moving agent, within the hollow of the wheel, in order that its power may be communicated directly to the periphery of the wheel."

Claim.—"What I claim as my invention, and desire to secure by letters patent, is the application of a flexible hoop, ring, or band, to an opening communicating with a hollow, or chamber, in the rim of a wheel, in such a manner as to close the opening in a part of its circumference, and leaving it open in the remainder, thereby allowing a communication with the chamber upon one side of the wheel, while the opposite side is closed, and the moving agent confined in such a manner, that its power is expended directly and constantly upon the periphery of the wheel. The said hoop or band may be made of any flexible substance; may be made of any convenient form; may be made continuous, or jointed, or a part only of the hoop, or ring, may be used and applied to the opening, in the same manner as a portion of the continuous hoop, or ring, above described. The hoop, or ring, may be applied to either side of the chamber, in such manner as to produce the desired effect, operating as a circular valve."

For Improvements in Furnaces for Steam Boilers: Henry F. Baker, Boston, Massachusetts; May 30.

Claim.—"What I claim, and desire to secure by letters patent, is one or more reverberating chambers (made and arranged as above set forth), in combination with the dreplace and boiler; the same being made to revolve and retain the volatile products underneath the boiler long enough to be consumed thereunder, as above explained. And I also claim the manner of arranging the air-distributing boxes, with respect to the bottom of the boiler, in combination with the curved deflecting bottoms of their respective chambers, in order that the flame produced by the combustion of the volatile gases, or other matters passing over the perforated plates of said air-boxes, may be blown in jets against the bottom of the boiler, as set forth; the said mode of arranging the said air-boxes, consisting in giving each of them an inclined position, substantially as represented in the drawings, and as above specified."

For an Improvement in the Rotary Steam-Engine: James Black, Philadelphia, Pennsylvania; May 30.

Claim.—"Having thus fully described my rotary engine, what I claim therein as new, and desire to secure by letters patent, is the combination of the rotary pistons with the lateral steam passages, or chambers, on each side of the same, in such a manner, that the steam shall pass from one chamber to another, through the passages between the pistons, in regular succession from the steam-pipe to the escape-pipe, at the same time acting upon the pistons, substantially in the manner herein set forth."

THE AMERICAN EXCAVATOR.

For an Improvement in the Machine for Excavating and Removing Earth; patented by W. J. Otis, on the 24th day of February, 1839; D. Carmichael and J. C. Osgood, the former of Brooklyn and the latter of Chittenango, New York; May 30.

Claim.—"Having thus fully described the manner in which we construct and operate our improved excavating machine, what we claim therein as new, and desire to secure by letters patent, is the manner herein described, in which we have connected and combined the scraper-staff, or arm, with the machine, so that it may be raised or lowered by means of the racks and pinions (by the aid of the triangular piece), arranged and operating as set forth, thereby dispensing entirely with the hollow mast, and with the toothed gearing and chains combined with said mast, as used for that purpose, in the original machine of Otis."

HOT-AIR FURNACES.

For an Improvement in Hot-air Furnaces: William G. Wing, New Bedford, Massachusetts; May 23.

Claim.—"I do not claim the combination of the inner hot-air chamber with the smoke chamber (immediately surrounding it), and the outer hot-air chamber immediately surrounding the said smoke chamber; but that which I do claim, is my aforesaid improvement, or manner of causing the air to circulate through the inner air chamber, for the purpose of protecting the bottom part or plate of the said air chamber from being too rapidly burnt out, and also for the purpose of causing the said air to absorb more heat than it would if allowed to circulate in an undivided chamber, and escape at the top thereof; my said improvement consisting in the employment or arrangement of the partitions, and induction and eduction passages of the inner air chamber, in such manner (as described) as to cause the air, which is received into the inner air chamber, to impinge in a current perpendicularly or directly upon the upper surface of that portion of the bottom plate of the said air chamber, which is exposed to the direct action of the flame from the fire-pot, or furnace, beneath it; the whole being substantially as set forth."

For an Improvement in Registers for Hot-air Furnaces: Ebenezer Barrows, New York; May 28.

Claim.—"Having thus fully described the manner in which I construct and arrange my apparatus for the opening and closing of the valves of registers for air-heating furnaces, what I claim therein as new, and desire to secure by letters patent, is the manner set forth of employing a hemispherical body, furnished with volute-formed openings, or threads, which receive and operate upon pins extending from the middle of the valves adapted thereto; the whole combination and arrangement, and the consequent operation of the parts, being substantially the same with that fully made known."

Weight of the Britannia-Bridge Tubes.—We are informed that the average weight, per lineal foot, of each tube for the Britannia-bridge, now in construction, will be 2 tons 10 cwts.; the form of the tubes is elliptical, 15 ft. wide, 30 ft. high, weight 1200 tons, and has to be lifted 116 ft. high by hydrostatic power, to be placed upon the stone piers now constructing for that purpose.

Flat Girder Bridges in Manchester.—We understand that the General Purposes Committee have passed a resolution, to the effect, that it is desirable to take steps to secure the safety of the public, with reference to the railway bridges in the progress of erection, or about to be erected, within the borough. The matter was referred to the railway bridges sub-committee, with a recommendation to call in Mr. E. Hodgkinson, F.R.S., and to take such other steps as to enable them to report to the committee. We understand that the railway bridges sub-committee have had an interview with Mr. Hodgkinson, and have made various inquiries; but, as they are not yet reported to the committee, it would be premature further to notice their proceedings. We believe we may say, that on the intimation of the committee, the Manchester South Junction and Altrincham Railway Company (now the London and North-Western Company), have suspended the erection of their flat-beam girder bridges within the borough, and that it is not improbable that the beams already up will be removed, and that cast-iron arched bridges will be substituted for them.—*Manchester Guardian.*

The Telegraph—New Position for the Ground Plates, and new Battery Solution.—James M. Lindsey, superintendent of the Philadelphia office of the Atlantic and Ohio Telegraph Company, some time since, finding that the line worked badly, resorted to an experiment, which has been successful. Heretofore all lines have used a ground-plate connected with the battery, forming a ground circuit by this means. All the lines in Philadelphia Exchange (five in number) are on this plan. Mr. L. thought this might be the cause of the difficulty—and accordingly he disconnected the ground-plate from the battery and connected it with the roof of the building, simply by putting the end of the wire between the joint of the sheets of copper, since which time it worked well. Mr. L. has also a solution which he uses—dispensing with the use of sulphuric acid in the battery altogether. It is used, it is said, on the western line, and where the battery formerly had to be renewed twice a week, with this one is renewed but once a month. The decomposition of the zinc is very slight, yet the current is as strong, if not stronger, than with the sulphuric acid. The above are stated to us as facts by a correspondent, and without comment are published, we believing that some counter current has been avoided by the experiment.—*Scientific American.*

Portable Cannon.—The American papers make mention of a new sort of cannon, invented by a Mr. Fitzgerald, which is so constructed that it may be carried by hand or on horseback, over mountains, forests, or marshes, where an ordinary cannon would be altogether useless. It consists of a series of circular perforated plates of the best wrought-iron, ¼ to ½-inch thick, with well planished faces, which are arranged in contact, and are connected together by wrought-iron rods or bolts, passing through holes near the periphery; the bolts having strong heads at one end, and a screw-nut at the other, whereby the plates are firmly held together. Several of the plates at the breach are, of course, solid, and without the hole in the centre. The series being thus connected, they are bored and polished inside, and turned off to the proper shape outside. While this cannon is stronger than those of common cast iron, it can readily be dissected, and each section may be shouldered by either pedestrian or equestrian artillerists, and, when required, the parts may be put together and secured, ready for action, in 10 minutes.

Value of Smoke.—A tunnel-chimney, three miles in length, has been erected at Annandale. Its fume will yield many thousands of pounds sterling per annum. Truly, here it may be said that "smoke does not end in smoke."

THE BRITANNIA TUNNEL-BRIDGE.

TO THE EDITOR OF THE TIMES.

Sir,—Having read an account of the proceedings at the half-yearly meeting of the proprietors of the Chester and Holyhead Railway Company on the 11th inst., in which reference was made to a letter of mine in the *Times* of the 3d inst. [see *Mining Journal* of the 7th] by Mr. Robert Stephenson in his written report and speech, and by Capt. Moorsom, R.N., managing director of that railway, in his speech on the occasion, I think it right to explain what has been misapprehended in my letter. Mr. Stephenson is quite correct in stating, that I make no objection whatever to the proposed tubes, or, as they may be termed, iron tunnels, for the Britannia-bridge. I have not the slightest doubt, that if made, as he states they will be, agreeably to the results of the experiments tried, and plan suggested, by Mr. William Fairbairn and Mr. Hodgkinson, in whose competency to this important task I have perfect confidence, they will be safe and strong; and I also concur in opinion that the plan adopted of making them strong enough to bear the heaviest trains, independently of any suspension apparatus, is not only practicable, but more judicious than to construct weaker tubes depending on suspension chains for safety.

Having made a rule never to interfere in what is not my own business or duty, I should not have presumed to trouble you on the subject of the proposed Britannia-bridge, if the proceedings of the select committee of the House of Commons on the Chester and Holyhead Railway, by whom I was examined on the 6th of May, 1845, had been printed by order of the house, as is usually the custom in Parliamentary inquiries of importance; for in that case the public would have seen how far I coincided with Mr. Stephenson, and no farther. In respect to the plan of operation which he had subsequently adopted, I know nothing of it, except what I inferred from a conversation in a railway carriage with Captain Moorsom, and from a few words exchanged with Mr. Stephenson himself on meeting him accidentally in Hyde-park; and I believed, after the conversation alluded to, that I was correct in the statement of the general plan of operation made in my letter of the 3d inst.; and Mr. Stephenson himself, in his official report in reference to the Conway-bridge, states that "the plans for raising and moving the tubes are completed; the hydraulic presses and chains are in progress, and will be ready in time; two of the pontoons are complete, and the others in a forward state." Such being his own words, I really cannot see that I have committed any great error in respect to the general plan of operation in my letter of the 3d inst. Indeed, I cannot understand in what the difference consists; but, instead of entering into an argument either with him or with Captain Moorsom on this subject—which could lead to nothing, as the time of those gentleman, as well as my own, may be better employed than in useless altercation—I prefer admitting that I am ignorant of all the details of the proposed plan of operation, and have never seen or even read a description of the apparatus they propose to use, or the experiments upon which they found their confidence of success. But having had something to do with winds and tides, I apprehend that, however perfect their arrangements may be, the raising of a tube of 1200 tons, the weight stated by Mr. Stephenson himself, may require more tides than one; and if so, who can depend upon a continued calm? Gales approaching to hurricanes have occurred in the Menai Straits from time to time, and have even torn up part of the roadway of Telford's suspension bridge, rendering it impassable until repaired. If once fixed, I have no doubt as to the safety of Mr. R. Stephenson's tubes, which I think may then defy any storm; but the intermediate process, in their ascent from the pontoons he speaks of to their final position on the piers, is what may reasonably excite apprehension. Mr. Stephenson observes, in concluding his report, that I have objected in strong and somewhat uncourteous language to the method proposed to be adopted in the erection of the tubes at the Conway and Britannia bridges, &c., and that he abstained from making any comment thereon; and, indeed, was precluded from doing so, since I merely indulged in random predictions without offering even the semblance of a reason for them.

In reference to the above, I shall remark, that the words actually used in my letter were, that "if he persists in this, his third plan of operation, the chances are, that the first tube he attempts to raise will find its way to the bottom of the Straits," which he has construed into a prediction of failure. I must, therefore, now declare, that it was not intended as such, but merely to convey my opinion that success was doubtful, and consequently failure possible; but I never intended to imply that it was certain. As, however, those words may be considered stronger than was necessary, I beg leave to withdraw them, or any others that may possibly bear the construction that Mr. Stephenson has put upon them; and though I cannot retract my opinion, that his original plan of operation submitted to the select committee of the House of Commons in 1845 was the safest and most judicious that could have been adopted, yet, if he shall succeed in what I infer to be his present plan, he will obtain credit in proportion to the greater risk, whether that risk be necessary or not, inasmuch as he will achieve an operation of a magnitude unparalleled in the history of mankind; and, what is more, though I entertain the greatest doubts on the subject, it will not only give me pleasure to hear of his success, but, to prove my confidence in the experiments of Mr. Fairbairn and Mr. Hodgkinson, I have no objection whatever to pass through Mr. Stephenson's tubes in the first railway train that shall make the attempt.

In respect to the letter, signed "A Mathematician," on the same subject, which also appeared in the *Times* on the 6th of August [see *Mining Journal* of the 7th], I entirely dissent from the opinion therein stated, as to the danger of the bolts or of any other part of the wrought-iron of Mr. Stephenson's tubes or tunnels being gradually rendered brittle like cast-iron, by the vibration of locomotive engines and trains passing through them. On the contrary, I conceive that no change of texture can possibly take place in the iron, and that no danger is to be apprehended from this cause, in which I speak with the full confidence derived from experience. In the numerous accidents which it has been my painful duty to inquire into officially, whether caused by engines running off the rails from their own unsteadiness, or being thrown off by some obstacle, or by collision, I never found that the iron of the rails themselves, on the upper surface of which the wheels of railway engines or carriages had been continually running with as much vibration or oscillation as can possibly belong to railway trains, had ever been deteriorated from this cause. On the contrary, though the cast-iron chairs were broken or split, and the rails themselves torn up and violently thrown out of their proper position, as is always the case on such occasions, the latter, being formed of wrought-iron, were bent more or less in proportion to the violence of the shock, being sometimes twisted into very curious curves, not unlike the letters S or C; but I do not recollect any of them having been broken, though I have known on two occasions a small slice cut off one of the narrow upper side flanges of a rail near its end by the flange of a wheel of a locomotive engine mounting it in running off the line, in the same manner as wrought-iron is cut by a heavy steel knife in workshops. Now, if no unfavourable change has ever been made in the texture of the wrought-iron of rails, upon which engines and trains may have been continually running for many years, it is not to be expected that the wrought-iron tubes or tunnels of the proposed Britannia-bridge will be injured in the slightest degree by trains passing through them, the wheels of which will not even be in actual contact with any part of the iron-work of those tubes. I have the honour to be, Sir, your most obedient servant,

C. W. Pasley, Major-General.

BRIDGE OVER THE MENAI STRAITS.

TO THE EDITOR OF THE RAILWAY RECORD.

Sir,—Permit me to correct what I am stated in your journal to have said at a meeting of the proprietors of the Chester and Holyhead Railway, on Wednesday, the 11th inst. [see the *Mining Journal* of the 14th.]

After Mr. Stephenson's answer to my observations on the tube—respecting the means of supporting it, and the vibration likely to ensue—I am reported to have said, that "I was quite satisfied;" which, unexplained, would appear to imply that I perfectly coincided in Mr. Stephenson's plans and remarks, whereas my satisfaction was simply confined to the very confident opinion of the engineer that the tube would be "as firm as a rock;" which opinion I shall indeed be *well satisfied* to see realised. Now, although I would throw no doubt on Mr. Stephenson's ability to construct a wrought-iron beam sufficiently strong, when fixed in its place, for the passage of trains, still I am inclined to think that a better and more economic plan, and one less liable to failure, could have been devised for crossing the Straits than a ponderous hollow iron beam, *solely* dependent upon its innate strength for resisting, not only the impulsive weight of the trains, but the far greater weight of its own bulk; which is increased by Mr. Stephenson declining to apply those means by which he might multiply his points of support, and thereby reduce the weight of his tube or bridge. The form adopted is also, perhaps, the best that could be devised for inviting and retaining the action of the wind, both outwardly and inwardly. The force which may come upon the tube from this source alone, in a violent hurricane, would equal 620 tons, applied in every variety of form—upward, downward, and laterally, inside and outside—testing every rivet and every sheet of iron in the most searching manner. This force, added to the weight of the tube and the trains, fully equals 2000 tons weight—an enormous strain, which this beam, spanning a void of 450 feet, without any intermediate support, may actually be called on to bear or resist.

With regard to Mr. Stephenson's reasons for supposing there will be no vibration, I differ—inasmuch as, although the inertia of a mass of 1200 tons weight in the tube, *versus* 100 tons of impulsive force in the trains, will, no doubt, *tend to lessen* the effects of the latter force, still I consider that the immense span between the points of support will materially qualify the effect of the weight of the tube; and from that cause alone great vibration may be expected when disturbing forces, such as the winds, the trains, &c., are in action. Although entirely kept out of view in Mr. Stephenson's explanation, the immense span (450 feet) will have as much effect in *permitting* vibration as the mass of iron in the tube will have in *resisting* it; but the relative weights of the inert and impulsive forces are not a fair criterion whereby to judge from the disturbances likely to ensue, unless at the same time the relative span is taken into account.

From these few remarks, you will gather that my satisfaction is of a limited character; nevertheless, I sincerely hope that all fears may be groundless, and that Mr. Stephenson's expectations may be verified. If the tube *can* be raised and fixed, and proves efficient in resisting the forces which may bear upon it, neither the directors nor proprietors will care to inquire as to its merits or demerits in a scientific point of view—they will be satisfied to have secured the object for which it was erected; and Mr. Stephenson will attain that honour and renown which every successful pioneer in difficult untrodden paths is fairly entitled to. I am, Sir, yours, &c., C. Hutton.

12, *Clifford's Inn, August* 17.

PREVENTION OF ACCIDENTS ON RAILWAYS.

Sir,—That which would tend immediately to lessen causes of accident would be special attention to a few effective but inexpensive adaptations to every train; the suggestion of which, I am quite certain, it is only necessary to make public to ensure their adoption upon every line of railway, without the aid of Government interference (although I must confess I am one of those who strongly advocate Government supervision), satisfied that it is no less the interest than the duty of all directions to avail themselves of any and every suggestion, even if costly, that aims at the prevention of accident, and the protection of human life. I do not offer the following suggestions as sufficient to meet all emergencies, but with the view of calling attention to a plan of simple application and continuous operation, which would require but the most ordinary care on the part of the attendants of the trains to render it perfectly effective—and which has already, indeed, worked so well whenever trials of it have been made, that I regret to find its general adoption so long deferred.

The first and most important demand is to provide some means of instantaneous communication between the guards and the engine-drivers and stokers. This I propose to effect by that of all things the most important—reflection. Each engine should have attached to it a looking-glass, immediately fronting the driver, by which, at a glance, without his attention being diverted from the proper look-out to be kept by himself and his stoker, he might have a complete view of all that is passing in the rear of his engine, and at once perceive, by the usual police signal on railways (if by day) whether the guard requires him to stop, or otherwise wishes to communicate with him. By night the signals should be made with lights of different colours—white, red, and green sometimes aided by reflectors—a system we adopted at the early opening of the Eastern Counties Railway.

Secondly—the guards, one and all, should be protected from the weather, and from the grit, ashes, and cinders that are continually ejected from the chimney or funnel of the engine. It stands to reason, that if you wish a man to look-out, as it is called, or to observe minutely under circumstances of such vital importance, you must endeavour to preserve his vision in the best way possible. In the guard's easemate, or box, which must be furnished (as, indeed, they are upon many lines) with windows on all the sides, immediately opposite to him should be fixed two looking-glasses at an angle of 90°, but each glass at an angle of 45° transversely with the train. By this arrangement the guards would be able to see all that was occurring in the direction of either the engine-driver and stoker, or of the other guards; having, in fact, a perfect view over the whole of the train.

Thirdly and lastly—for the present, but not leastly, as regards another most important

object for consideration—the break, which is unfortunately, in most cases, as little looked to as the pump on board of ship, although equally essential for the prevention of accident and the preservation of both passengers and carriages. In all passenger trains, without exception, whatever the description of carriage may be of which the train is made up, one and all should be furnished with breaks. The number of breaksmen would of course be regulated by the extent of the train; but, taking into account the velocity at which trains now travel, and its prospective increase through the improved mechanism of the system, one breaksman should be appointed to every three, or, at least, four carriages, or trucks, as the case may be, averaging a gross load of about 20 tons. These men should be properly drilled in the use and application of the break (which few understand), and care should be taken to instruct them that, where practicable, the break should invariably be first applied by the breaksman upon the last carriage or truck, in the extreme rear of the train, to prevent the carriages riding upon their buffers, by which so many serious accidents have occurred, when the carriages and trucks have been forced off the rails. On the contrary, the break upon the engine-tender is generally put first into requisition, which ought to be the last applied except in cases of emergency, and then only with very great judgment; a sudden check imparted to a train when in motion frequently being as dangerous as a collision; the passengers having the same velocity as the train, those sitting with their faces to the engine are impelled against their opposite neighbours, whose backs happen to be towards the engine, exactly with the proportionate amount of damage due to the momentum acquired—hence the practice of suddenly arresting the progress of the train by the application of the break is highly dangerous, and ought to be avoided. Thus far for the present—my object being to suggest such simple means for increasing the security of the public, as may, can, and ought to be adopted upon every line of railway. There are, of course, other requirements necessary to guard against danger, and prevent accidents; but these are of a character less adapted to this mode of suggestion, involving details of a technical nature; yet they are not the less to be desired, nor should they be delayed in their application.—J. BRAITHWAITE, C.E.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY.....Thames Haven Dock and Railway—Guildhall Coffee-house, at One.
Londonderry and Coleraine Railway—offices, at Twelve.
MONDAY.....Asturian Mining Company—offices, at Two.
Banwen Iron Company—offices, at One.
Electric Telegraph Company—offices, at Two.
Llynvi Valley Railway—offices, at Two.
TUESDAY.....Balleswidden Mining Company—at the mine.
Caradon Wheal Hooper Mining Company—at the mine, at Twelve.
Irish Waste Land Improvement Society—King's Head Tavern, at One.
Caledonian Railway—Gibb's Hotel, Edinburgh, at One.
Taw Vale Railway and Dock Company—London Tavern, at One.
Swansea Dock Company—Guildhall Coffee-house, at One.
WEDNESDAY...Bristol and Exeter Railway—White Lion Hotel, Bristol, at Twelve.
FRIDAY.....Ilam Mining Company—offices, at One.
SATURDAY.....Great North of India Railway—London Tavern, at One.

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

NEWRY, WARRENPOINT, AND ROSTREVOR RAILWAY: Half-yearly.—From the report, it appeared the entire land had been agreed for, which amounts to 21,000*l.*, of which sum 14,000*l.* has already been paid.

FLEETWOOD, PRESTON, AND WEST RIDING JUNCTION: Half-yearly.—The Burnley and Colliories branch is to be brought before the House of Lords, at the meeting of Parliament. The most difficult of the works are contracted for, and operations are to be immediately commenced.

NORFOLK RAILWAY: Half-yearly.—From the report, it appeared that the revenue had been, for the half-year ending 30th June, 47,545*l.*; and working expenses, 24,669*l.*—showing a steady and uniform increase in every branch of traffic. The opening to East Dereham had fully answered every expectation; and the Lowestoff line had been quite satisfactory. All their bills applied for had been passed. A dividend of 3 per cent. for the half-year was declared. The meeting was made special for raising the new capital for the Reedham and Diss lines, and for the completion of Lowestoff harbour. The several resolutions, carrying out the recommendations in the report, were carried.

HUDDERSFIELD AND MANCHESTER: Half-yearly.—The report stated, that the amalgamation with the Leeds, Dewsbury, and Manchester, and the London and North-Western Companies, had received the Royal Assent. The expenditure for works on the line had been, in the half-year, 127,747*l.*; land and compensation, 36,697*l.*; engine, carriages, rails, &c., 34,325*l.* To meet this outlay, two calls had been made. The portion of line open from Heaton Lodge had fully answered expectation—the average number of passengers being 990 daily, at an average receipt of 22*l.* The total sum received had been 770,130*l.*; and expended, 702,134*l.*—leaving balance, in bankers' hands, of 67,996*l.*

AMBERGATE, NOTTINGHAM, AND BOSTON: Half-yearly.—The principal feature at this meeting was the increase of the number of directors from 13 to 16, which was carried by a majority of 47 to 35.

NORTH WALES: Half-yearly.—A rather extraordinary scene occurred, in consequence of Messrs. Archer and Mott being anxious that the line should be made, while the directors were of opinion that it would be better, under present circumstances, to husband their resources; and, should they not be enabled to enter into engagements with other companies, to obtain a short Act, and wind up the company. After a long discussion, the recommendations of the directors were adopted, Mr. Archer only dissenting.

SOUTH WALES: Half-yearly.—The report stated, that the deviations and improvements, which it had been thought necessary to promote, had received the sanction of Parliament. The Swansea Valley bill had received the Royal Assent, with powers to sell to the South Wales Company. A clause had been inserted, authorizing the payment of interest on calls at the rate of 5 per cent., instead of 4, as fixed by the original Act, but which had been rejected; the power was expected to be allowed in the next session. The works on the whole line are in active progress. A conversation arose as to the intention of directors in the matter of interest; when the Chairman stated that, as the Railway Commissioners kept a sharp look-out after companies, he could only promise that the directors would use their best endeavours to render the payment of 5 per cent. legal.

VALE OF NEATH.—The report stated, that the Act authorising the construction of the whole of the works had been obtained. Contracts for nine miles were let to responsible contractors, and had been commenced; and there was a sufficient balance in hand to proceed with.

NEWRY AND ENNISKILLEN.—The principal difficulties which the directors have had to encounter on this line were passing away; the first five miles of construction was proceeding satisfactorily; and the directors, in their report, expressed their anticipations of the best results.

DUNDALK AND ENNISKILLEN: Half-yearly.—From the report and balance-sheet, it appeared that there was a balance in hand of 23,420*l.* The capital of the company had been reduced from 750,000*l.* to 450,000*l.*; and by the engineer's report, it was shown that the works were proceeding in a very satisfactory manner.

NORTHERN COUNTIES UNION. Half-yearly.—The directors' report stated that the deviation bill had received the Royal Assent, and by it the capital was reduced to 2,625,000*l.*, being a diminution of 375,000*l.*, or 6*l.* 5*s.* per share. An agreement had been entered into with the Stockton and Darlington Company for a guarantee on the expenditure from Bishop Auckland to West Mill, and the meeting was made special for the purpose. The Chairman stated, he believed there would be no further call during 1847, as they had sufficient funds to go on to the end of the year; only half the last call had been received, some parties were willing to pay the 5 per cent. interest, rather than raise the money immediately. The number of directors was reduced from 18 to 12, and the report was unanimously adopted.

BIRMINGHAM, WOLVERHAMPTON, AND STOUR VALLEY: Half-yearly.—The entire expenses had been 302,015*l.* The construction of the works was proceeding very satisfactorily; and it was decided to pay 4 per cent. per annum on calls paid.

EXETER AND CREDITON: Half-yearly.—The financial account showed the receipts, up to the 30th June, to have been 93,525*l.*; and expenditure, 80,750*l.*—leaving a balance in hand of 12,775*l.* The report was unanimously adopted. A special meeting was afterwards held, at which resolutions were passed, relative to the suit in Chancery against the late directors.

BOLTON, BLACKBURN, CLITHEROE, AND EAST YORKSHIRE: Half-yearly.—From the report, it appeared that a portion of the line—viz., from Blackburn to Darwen—was open, and yielding an amount of revenue much larger than anticipated; the number of passengers, in 22 days, having been 24,452.

GLOUCESTER AND DEAN FOREST.—It was stated in the report that the directors had purchased the greater proportion of the land required; and the engineer had completed his arrangements for the prosecution of the work.

WHITEHAVEN AND FURNESS: Half-yearly.—On the portion of the line under contract—15 miles, or about one half—the progress was highly satisfactory. Of the total estimated cost of this portion (135,000*l.*) 70,000*l.* had been expended, and a large portion of the remaining 60,000*l.* would be required during the ensuing half-year. The accounts showed that the expenditure had been 75,686*l.*—leaving a balance of 24,567*l.*

EAST AND WEST INDIA DOCKS AND BIRMINGHAM JUNCTION: Half-yearly.—The accounts showed that 119,762*l.* had been received, and 91,113*l.* expended—leaving a balance of 28,649*l.* The Chairman, in reply to a proprietor, said the negociations with the North-Western Company would be reopened as soon as sufficient capital was paid up.

DIRECT LONDON AND PORTSMOUTH.—The report recommended an immediate prosecution of the works, exercising due caution as to raising funds in the present state of the money market. The total receipts had been 109,331*l.*; and expenses, 74,167*l.* The report was adopted.

BRIGHTON AND CHICHESTER: Half-yearly.—The chairman stated, that the line from Gosham to Farnham was nearly complete, and nothing now prevented them selling to the Brighton Company. From the balance-sheet, it appeared that the gross expenditure had been 293,058*l.*

LONDONDERRY AND ENNISKILLEN: Half yearly.—The portion of the line from Londonderry to Strabane, 15 miles, was completed and opened on the 19th April last, and the receipts had given sufficient proof that the results would be satisfactory. It was resolved, that the capital should be reduced from 500,000*l.* to 350,000*l.*; and it was stated by the Chairman, that there were 8000*l.* arrears of calls due.

SUNDERLAND DOCK COMPANY.—The half-yearly meeting of this company was held in the Commission-room, Durham, on Monday last. From the directors' report, it appeared that the undertaking was progressing as favourably as their most sanguine expectations could desire. The construction of the large dock and half-tide basin was let by contract, and they expected to have the work completed by the 31st of December, 1849. From the engineer's report, it appeared that the groins had been made of solid mason work: the excavations were progressing rapidly, and every other department of the work now in progress was proceeding very favourably.—The CHAIRMAN (Mr. Bramwell), remarked that the shipping trade of Sunderland exceeded its harbour accommodation; the dock now in progress, however, would, he hoped, increase the accommodation to the extent required; it would be one of the finest docks in the kingdom, occupying an extent of 27 acres, and adapted to give the greatest facility to business, of which there was every prospect of a good share. The coal-field of the neighbourhood was one of the first in quality in the world—already 1,500,000 chaldrons of coals in a year were shipped at the port; and recently other collieries had been added, which were likely to vend their productions at Sunderland. The railway leading to the dock would shortly be extended to Bishop Auckland, and a great amount of traffic by the increased facility of transit to the west side of this extensive county might reasonably be looked for. The dock dues would be of a very moderate character, and ships loading therein would not be subjected to the expense of 1s. 6d. per keel for towing on the river as at present. The directors expected that the undertaking would be completed without the full amount of 25*l.* on each share being called for. He mentioned, that a claim on behalf of the Bishop had been made upon the directors, for a consideration for his privilege. A valuer had been appointed, and the award could not be much, as the ground was previously useless.

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